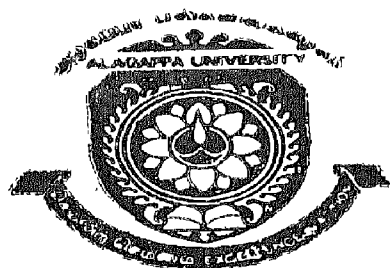


**A BIBLIOMETRIC STUDY OF
PERSPECTIVES IN EDUCATION"**

Dissertation submitted to the Alagappa University
in partial fulfillment of the requirements
for the award of the degree of
**MASTER OF PHILOSOPHY
IN EDUCATION**

Submitted by
S. JAYARAMAN

Guided by
Dr. S. MOHAN



**DEPARTMENT OF EDUCATION
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JULY 1992**

GUIDE'S CERTIFICATE

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*This is to certify that the dissertation entitled,
A BIBLIOMETRIC STUDY OF "PERSPECTIVES IN EDUCATION"
is an original and independent research work done by
Mr. S. JAYARAMAN during the period 1990-92 in the Department
of Education, Alagappa University under my guidance.*

Place: Karaikudi,
Date :

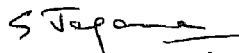

(Dr. S. MOHAN)
GUIDE

STATEMENT OF THE CANDIDATE

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I hereby state that the Dissertation for the M.Phil., Degree entitled "A BIBLIOMETRIC STUDY OF PERSPECTIVES IN EDUCATION" is my original work and that it has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or any other similar titles.

Place: Karaikudi,
Date : 31-7-92


(S. JAYARAMAN)

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CHAPTER I

INTRODUCTION

1.0. INTRODUCTION:

Modern era is witnessing a proliferation of knowledge - knowledge in all disciplines. Scientific renaissance of the 16th and 17th Centuries and the later advancements in Science and Technology have led to an enormous growth of literature, not only in Science & Technology, but also in Social Sciences, Humanities, Arts, etc. This all round expansion of knowledge and literature has resulted in what is called 'Information Explosion'. The Information Explosion has thrown a challenge to the researchers in their efforts to keep themselves up-to-date and well informed in the area of their specialization. Hence there is an imperative need for the great mass of information to be systematically recorded and organised for prompt and expeditious dissemination to the researchers and subject experts.

1.1. PERIODICALS

Information is stored in various sources, such as, primary, secondary, and tertiary. Among the various sources of information, the journals occupy a very prominent position in catering to the needs of the information

thirsty researcher. The journal articles have a pivotal role to play as major channels of communication between the researchers. The journal articles carry mostly primary information conveying the nascent and the latest ideas in any field. The terms Journals, Serials, Transactions, Bulletins, Proceedings, Magazines are all collectively called Periodicals, since they are publications in serial form at regular periodical intervals - Weekly, Fortnightly, Monthly, Bimonthly, Quarterly, Annual, and so on. However, all the above terms are not synonymous. They differ not only in the periodicity but also in the style of presentation, depth and standard of the subject covered etc.

Journals are Professional, Technical and Scientific publications. They contain scholarly articles which carry the frontier of knowledge into wider horizons and guide the researchers to 'Pastures New'. Thus journals act as a principal medium of communication between the researchers; they aid scholarship and offer a forum for the continuous critical examination of hypothesis and theories.

1.2 GROWTH OF PERIODICAL LITERATURE

The earliest magazine or periodical appears to have been the German Erbauliche Monaths - Unterredungen (1663-

1618: Edifying Monthly Discussions) started by Johann Rist, a theologian and poet of Hamburg. Soon after, there appeared - group of 3 learned periodicals - Journal des Scavans in France (1665), the Philosophical Transactions (1665) of the Royal Society of London and Giornale de' letterat: (1668) published in Italy. It is notable that the Royal Society embraced the whole field of knowledge. Daniel Defoe's " Review (1704-13; thrice weekly), Sir Richard Steele's Tatlay (1709-11; thrice weekly), Addison & Steel's Spectator (1711-12), were the important periodicals that were called 'easy periodicals'. The literary and scientific periodicals developed strongly in the 19th Century which became a forum for political, literary and artistic questions. A large number of reviewing periodicals appeared in the U.K. Edinburgh Review (1802-1929), Quarterly Review (1809-1967), Westminster Review, Saturday Review (1855-1938), the Contemporary Review were some of the reputed periodicals offering specialized critical reviews.

Beginning with two Journals that started publication in 1665, the number of periodicals has grown in huge proportions, although estimates vary considerably, to over 1,00,0000 titles. The 26th edition of Ulrich's International Periodical Directory lists 70,800 journals in 542 subject areas. It is not easy to assess which of the huge mass are significant and how much contribute to new

knowledge. Analysis has revealed that, out of 13,000 journals received by one major research library, only 4,000 could be considered as substantive.

The antecedents of the modern Journal Paper or Article are not clear. However, it is observed that :-

The Scientific paper early took on a wellprescribed format that has been more or less traditionally honoured through the ages. The classical scientific paper is said to proceed with the stately dignity of minute from the statement of a problem, to a discussion of its background and history, to a review of literature on the subject (documented with references or citations to the original papers), to a statement of the methodology followed in the experiment or observation, to a report of the results found and the conclusions to be drawn from these results, along with an indication of necessity for future research on the subject--the whole followed by a summary in the form of a code, which recapitulates all the preceding elements.

1.3 GROWTH OF PERIODICAL LITERATURE IN INDIA

The growth of periodical literature in India has also been following the global trend, increasing number of publications coming our year-after-year in various disciplines. The 2nd edition of the Directory of Periodicals published in India (1991) lists 7,200 titles in different subject areas. This shows an increase of about 2000 titles from the number listed in the 1st edition (1987). It is to be noted that the above listing excludes Newspapers, House Organs, Newsletters, Annual Reports, etc. Language-wise 4,626 titles are in English, 796 titles are in Hindi. Delhi accounts for 1440; Maharashtra 1006; West Bengal 799; Uttar Pradesh 655; Tamil Nadu 433; Karnataka 275; Andhra Pradesh 232; Kerala 222, and so on.

According to an estimate there are about 4,000 journals in all disciplines of Science & Technology, which is a mere 4% of the global number.

The publication of some Indian Journals can be traced back to early part of the century and there are journals which are over 75 years old. About 30 to 40 years ago, India could boast of a few journals making the top 30 best journals of the world, but at present they do not figure in the top 1,000.

In the field of Education 156 periodicals are listed and this includes the Perspectives in Education, the subject matter of the present study.

1.4 PERSPECTIVES IN EDUCATION

The present study aims to make a Bibliometric analysis of Perspectives in Education. The Journal is published by the Society for Educational Research and Development, Baroda. It is a quarterly journal with Buch, M. B. as its Chief Editor and reputed educationists drawn from renowned institutions like the National Institute for Educational Planning & Administration (NIEPA), Jamia Milia Islamia, International Institute of Educational Planning, Paris; Kent State University, USA; National Council of Educational Research & Training (NCERT), constituting the Editorial Board.

The journal which commenced its publication from January 1985, has completed 7 volumes in 1991. It is of interest to note that the editorial note in the first issue says that 'it is not to be just another journal, the aim of the journal is to provide an International Forum for discussions on problems of Education'.

The basic policy of the journal is "to encourage an inter- disciplinary approach to understand educational phenomena, to give priority to dissemination of ideas, innovative practices and research findings concerning education in the Third World". The editorial note further proclaims that the journal will strive to examine the educational problems in its multifarious dimensions, in a socio- historical context instead of restricting the study to the confines of Classroom teaching, Deploing the present trend ,of imposing the Western ideas and thoughts on the entirely different contexts of the Third World Countries, the journal promises to "provide a positive contribution by focussing ideas, experiences, innovative practices and research findings, appropriate and relevant to the conditions in the Third World.

The present study, by a bibliometric analysis of the contributions, contributors and the cited references of the Perspectives in Education endeavours to find out whether the journal is able to attain the objectives for which it was started, that is whether the contributions in the journal are inter-disciplinary, the educational problems of the Third World are focussed. Apart from the above aspects, the journal is to be analysed to find out the authorship trend - single or multiple, the time-lag between the receipt of the

manuscript and its publication, productivity of the authors, their nationality and institutional affinity, citation pattern with regard to the Bibliographic variables such as Form, Age and Quantity.

1.5 BIBLIOMETRICS

Bibliometrics is an emerging thrust area of research involving researchers from different disciplines. The term 'Bibliometrics' coined only in 1969 lies in the border areas of social and physical sciences. Though this technique has gained tremendous popularity among the Librarians, Documentalists and Information Scientists, it has also attracted the attention of behavioural and social scientists as well as scientists from 'Big Sciences'.

Ranganathan's Librametrics, the Russian and the FID Concepts of Scientometrics and Informetrics, though not synonymous with Bibliometrics, are supplementary and complementary to each other. The FID has attached so much importance to the Informetrics technique as to form a FID Committee for Informetrics. The Mathematics Professor turned Librarian par excellence Ranganathan argued that on the lines of Biometry, Econometry, Sociometry, etc., 'Librametry', concentrating on the application of Mathematical and Statistical concepts to Library activities

and services may usher in, a new era for 'quantifying the quality'.

Definition of Bibliometrics:

It was Pritchard who first coined the term Bibliometrics in 1969, in his article "Statistical Bibliography or Bibliometrics" in the Journal of Documentation. Though the term is of recent origin, its application and practice may be traced back to 1917 through literature survey. The term has its roots in 'biblio' and 'metricus' or 'metrikos' meaning book and measurement respectively. Pritchard has defined Bibliometrics as "the application of Mathematics & Statistical Methods to books and other media of Communications". Fairthorne defined it as "Quantitative treatment of the properties of the recorded discourse appertaining it". Potter elaborates it further: "The study and measurement of the publication pattern of all forms of written communication and their authors". Britain, J.M. has brought out the difference between Librametry and Bibliometrics in the following words -

"All Bibliometric studies follow the systematic approach to documents where the unit of analysis is the document and its characteristics and not the user".

It can be summed up that Bibliometrics is the quantitative study of all aspects of the literature of a subject and the 10 Bibliographic variables of the documents both the sources and their references.

The Bibliometric study of a journal or a collection of journals can go a long way in throwing light on the various aspects of the contributions i.e., articles such as the dispersion or distribution of the various subject-areas within a field of interest; the trend of authorship whether towards single authorship or multiple authorship; the citation pattern of the contributors and so on.

Bibliometric study thus includes also the study of the citation pattern of the authors of the articles in journals. The backbone of citation analysis rests on the hypothesis that the practice of quoting an earlier work in the field of study is always meaningful and points to some inter-relation between the cited and citing work. When one paper or article makes mention of or makes reference to another article or paper, the latter has been cited by the former as a source of information, as the support for the point of view, an authority for the statement of facts, etc. Weinstock has pointed out a number of purposes for the citing of previous works by authors of which the following are important:

- (a) for identifying methodology, equipment, etc;
- (b) for providing back ground reading;
- (c) for substantiating claims;
- (d) authenticating data, classes of fact, contents, etc;
- (e) identifying original publications in which the same or similar ideas and concepts were discussed;
- (f) for criticising previous works;
- (g) giving credit to related works;
- (h) paying homage to pioneers.

The Bibliometric study as a tool of research can reveal important patterns in a discipline and help, provide a map of the field of study as it currently exists. The investigator by analysing the various aspects of publication and Bibliographic variables of the cited references - Form, Age and Quantity in the various issues of the Perspectives in Education, aims to get a clear map of the Journal Perspectives in Education and its contribution to Educational Research.

•

CHAPTER II

REVIEW OF RELATED LITERATURE

- 2.0 *Introduction*
- 2.1 *Literature Survey*
- 2.2 *Studies on Specific Journals*
- 2.3 *Inferences from the Review*
-

CHAPTER II

REVIEW OF RELATED LITERATURE

2.0. INTRODUCTION

Before finalising the research design, the investigator has to undertake a survey of the literature in the area related to the problem to be studied. Since effective research is based on knowledge, such a survey serves a number of purposes like providing ideas, explanations or hypotheses, valuable in understanding and formulating a suitable research design and locate comparable material useful in interpreting the results of the problem being investigated. Best and Kahn (1986) observe: "Citing studies that show substantial agreement and those that seem to present conflicting conclusions helps to sharpen and define understanding of existing knowledge in the problem areas, provides a background for the research project and makes the reader aware of the status of the issue".

With the above guidelines in the mind, the investigator scanned a number of journals, abstracts and theses and located a host of literature in the field of Bibliometric study, citation analysis and studies of journals.

It is estimated that Bibliometric literature covers more than 25% of the total contributions in Library and Information Science of this, Citation Analysis studies occupies a sizeable portion.

2.1. LITERATURE SURVEY

Literature survey reveals that from its advent in 1917 by Cole & Eales, thanks to the fine works of Eugene Garfield, more than 2000 items have been identified in Bibliometric study, even as on 1980 and from the various bibliographies compiled on the subject upto 1985, 2675 papers are in journals and proceedings and 550 are reports, dissertations, monographs, etc. The reputed indexing journal *Current Contents* publish periodically current comments which deal with bibliometric studies. Further, the Proceedings of three International Conferences on Bibliometrics - the first in Belgium in 1987, the second in Ontario, Canada in 1989 and the third in Bangalore in 1991 provides a plethora of information on Bibliometrics.

Cole & Eales in 1917 wanted to evaluate statistically the Bibliographical citations on Comparative Anatomy covering the period 1550-1860, with a view to ascertain the growth of literature on the subject. Under the title of

Statistical Bibliography, Hulme in 1923 tried to quantify the growth of scientific knowledge and thereby assess the overall development and growth of modern civilization by using a special technique which he termed Statistical Bibliography.

Though the present investigation does not include in its scope any study of the empirical Laws and Bibliometric models developed and established in the field of Scientific Periodicals, it is essential to make atleast a mere mention here of the three fundamental laws - Lotka's Inverse Square Law of Scientific Productivity; Bradford's Law of Scattering of Scientific Papers; and Zipf's Law in Linguistics. They are based respectively on -

1. No. of authors contributing in a discipline or field
2. Distribution of Periodical publications in a defined area of knowledge
3. Ranking of word frequency in a particular set of documents.

Based on the above three laws, there has been an exponential growth of literature on the subject. Many standard statistical studies have been either to substantiate, modify, extend, link or criticise these laws.

Sengupta (1970) analysed 98,780 citations collected from a group of source journals to rank periodicals of eight Bio-medical disciplines, namely medicine, Biochemistry, Micro-Biology, Physiology, Pharmacology, Genetics, Neuroscience and Bio-Physics; during 1968-1970.

The ranking lists of the above eight subjects were made by analysing the citations collected from A Review of Medicine, A Review of Biochemistry, A Review of Microbiology, A Review of Physiology, A Review of Pharmacology, A Review of Genetics, A Review of Neuroscience and A Review of Biophysics, Bioengineering. From the results of his analysis, he prepared remarking lists of the above eight disciplines constituting of 975, 533, 624, 633, 781, 326, 528 & 376 journals respectively. A number of journals found place in more than one subject.

The finding was that only a small number of journals - which are called core journals accounted for maximum segment of the contemporary literature in the respective subjects.

Thus Sengupta could rank the periodicals in eight Biomedical subjects and also identify the core periodicals in each of the eight subjects through Citation Analysis.

Furnham, A.F. in his "Quantifying Quality: An Argument in favour of Citation Counts" in the Journal of Further & Higher Education (Vol.14, No.2, 1990) points to the fact that one measure that has been extensively used in North America for over 20 years to measure Individuals' and Departments' research productivity and impact is the "Citation Count", which is the number of times an article is cited in the literature. He refers to Garfield's mammoth work of counting citations for all disciplines for the 15 years period from 1961 to 1975 from which he listed 250 most cited authors. Each of the top 250 was cited more than 4000 times during the 15 years period. Another interesting finding was that 17% of the above had received Nobel Prizes, 44% were elected to the U.S. National Academy of Sciences, 22% were fellows of the Royal Society, 3% were members of the French Academy of Sciences and nearly 2% belonged to Swedish Academy of Sciences.

Furnham had studied the works of American and Canadian researchers which have established a high correlation between the citation index and such things as distinguished scientific awards, academic opinion polls, learned society presidencies, etc. He says that the method has concurrent validity as it correlates with other different less objective measures of the same thing and then the method is also reliable as the results are stable over a period of time.

With the help of a 2 by 2 taxonomy based on productivity (number of publications) and citations (over a set period), he concludes that -

		PRODUCTIVITY	
		HIGH	LOW
CITATIONS	HIGH	A	B
	LOW	C	D

A 2 by 2 Table that attempts to describe patterns of Productivity.

- (A) High productivity, high citation pattern is the mark of a high flier. Producing, (Publications) a lot of work, most of which gets cited. This pattern reflects an industrious, well thought of academic who is extensively referred and quoted.
- (B) High citation - Low productivity pattern may be the sign of a genius. Here everything the author writes is well cited because of its excellence - innovative ideas, methodology, unique findings, etc.
- (C) The pattern of high productivity but low citations - may be due to work of poor quality, trivial or mundane studies, or the individual working in an unpopular area or publication in low quality journals.
- (D) The pattern of low both on productivity and citations suggests that even that which is published is ignored.

Furnham also lists the possible errors and biases in the citation Analysis but asserts that "it is a robust, reliable valid and comparable method of evaluating quality and a very impressive performance indicator".

John Field, Tessa Lovell and Peter Weller in their article "Citation Counts and Research Quality in Continuing Education: A Cautionary Note" in the Journal of Further and Higher Education (Vol.15, No.2, 1991) discuss their investigation. They carried out an empirical Case Study of Citation Counting applying it to Studies in the Education of Adults and the International Journal of Life-long Education.

They scanned all reference during the five years between 1986-90. They added together all the references and awarded one full publication equivalent (FPE) for each reference cited and a half FPE for an author involved in a joint-author publication. They found out the ten most frequently cited Authors:

Authors	Studies	IJLE	Total
1 = Fjerie, P	5.0	23.0	28.0
Knowles, M	5.0	23.0	28.0
3 Boshier, R	1.0	23.0	24.0
4 Mezirow, J	1.0	21.5	22.5
5 = Brookfield, S	2.0	18.5	20.5
Mcllroy, J	9.5	11.0	20.5
7 Tough, A	2.0	17.0	19.0
8 Lawson, K	2.0	16.0	18.0
9 Dewey, J	3.0	14.0	17.0
10 Cross, P	2.0	12.0	14.0

They obtained similar result for finding out the 10 most frequently cited Publications. They found some interesting results such as only one Woman among the 10 most frequently cited authors; most are Americans; only 2 British and so on.

They further concluded that within the field, the strongest area was education of Adults. Freire's *The Pedagogy of the Oppressed* was clearly the most frequently cited reference in both journals. The findings of this study suggest that -

- (1) the study of continuing education is still in a formative and under-developed stage;
- (2) there is little dialogue and debate between continuing education scholars;
- (3) there are no widely shared conceptual frame-works of analysis;
- (4) the field is heavily weighted towards the study of adult education, with relatively little research into vocational education or FE.

These findings point to important defects and gaps in the body of continuing education and that there is a dearth of scholars' in Continuing Education in Britain.

In the year 1985, Paul Mohan Roy conducted a Bibliometric study under the title "A Bibliometric Analysis and Evaluation of Research Writings by Indian Authors in the field of Physics". The overall objective of the study was to analyse and evaluate the Indian Scientific Literature using Bibliometric techniques.

The first aim was to study the pattern in which the literature of Science produced by Indian Scientists is structured and to what significant, extent it differed from that of the literature of Science produced by Scientists of other Countries.

Secondly, the bibliometric variables relating to the source papers like Author, Title and Subject were subjected to bibliometric study with the objective of studying the significance of the following in Information retrieval -

- (1) Multiple Authorship Trend
- (2) Rate of expressiveness of Titles, and
- (3) Incidence of facets (categories) in the source papers.

The third objective was to study the literature use made by the Indian researchers in Physics by finding out the bibliometric distribution of cited references given in the papers contributed by the Indian researchers against the following characteristics:

- (1) Scattering of Journals
- (2) Age of the documents cited
- (3) Form of the documents cited

METHODOLOGY

Following was the Methodology by which the necessary data were collected.

Paul Mohan Roy limited his work to the contributions of Indian Physicists which appeared in the **Physics Abstracts**. Limiting his study to 1971, 1976 and 1981, he scanned the **Physics Abstracts** of the years 1972, 1977 and 1982 which reported the abstracts of the contributions made by the Indian Physicists in the base years 1971, 1976 and 1981. He also made extensive use of the Science Citation Index of the relevant periods for studying the citation pattern of each author for his work.

Two work-sheets were designed to collect information relating to the articles and their references.

I The first one in 8 $\frac{1}{2}$ " x 7" was designed to collect information on the following variables:

(1) Title of the Journal (including Volume Number, Issue Number)

(2) Time-lag one (Publication time - Time difference between the source paper data of Publication in the Journal and its appearance in the Journal)

Time-lag Two (Abstracting time - Time difference between the source paper's date of publishing in the journal and its appearance in journal)

(3) Name of the Author

(4) Title

(5) Number of Keywords in the Title

(6) Number of References in Source Paper

II The second worksheet consists of the following variables:

(1) Form of the cited document

(2) Title of the Journal, if it is a journal article

(3) Year of Publication

CONCLUSIONS

The following were the conclusions of Paul Mohan Roy's study:

1. The phenomenon of single authorship in the literature produced by Indian Physicists is found decreasing sources jointly written by 2 authors and more than 2 authors showed an increasing trend signifying corresponding increase in collaborative research by Indian Physicists.
2. The Information transfer time for Physics literature produced by Indian Physicists is needlessly long. There is a need for an immediate revision of the editorial policy of Indian journals and the subscription policy adopted by Indian Libraries.

The editors of Indian Journals by cutting down the bureaucratic delay can develop faster and quick ways of publishing.

The publishing time for Foreign Journals is progressively decreasing.

3. The Indian authors of sources of Physics articles referred more to journal literature.

95% of the cited reference were from Journals. Books occupied only the fourth position in the form cited by the authors.

There was increasing trend to refer to theses though its percentage was only very small.

4. Indian Physicists preferred references to journals and that too of recent origin. This showed their look out for latest and nascent information in their field.
5. The reference/source average showed significant concordance with author/source average and there was negative correlation between reference/source average and medium citation Age.

Vaishnav & Dharmapurikar undertook "Citation Analysis of the "Herald of Library Science" and it has been reported in the Herald of Library Science Volume 29, July-October 1990. It analyses the citations provided in articles in the Journal Herald of Library Science - a source Journal on Library Science.

OBJECTIVES OF STUDY:

To analyse the citations of Herald of Library Science
is to know:

- (1) Citations per article;
- (2) Types of documents cited;
- (3) Geographical distribution of journals cited;
- (4) Obsolence of Library Literature;
- (5) Chronological distribution of citations -
 - (a) Total citations,
 - (b) Journal citations;
- (6) Ranking of authors cited;
- (7) Ranking of titles;
- (8) Language cited;
- (9) Self citations;
- (10) Bibliographic coupling;
- (11) Co-citations;
- (12) Frequency of periodicals used; and
- (13) Ranking of journals.

SCOPE & LIMITATIONS:

Though the journal has completed 28 volumes, considering half life of the documents, the present study is limited to only 10 volumes, i.e., from 1977 to 1986 for volumes 16-25. Further, the study was limited to citations given by the articles only.

METHODOLOGY

Citation analysis method was used for the present study. For the collection of data the catalogue size cards were used to record the information of citing and cited documents. The numbers given to citing document cards were 1, 2, 3, etc., while numbers given to cited document cards were 1.1, 1.2, 2.1, 2.2, ... etc. All the bibliographic details of citing as well as cited documents were recorded according to AACR (1967). In all the ten volumes, 202 citing articles cited 1,370 citations.

FINDINGS OF THE STUDY:

Citations per Article: As 202 citing articles have cited 1,370 citations, i.e., on an average 7 citations were cited per article.

The frequency distribution of citations per article showed that nearly 28% of the articles had no citation. 63% of the articles were having citations between 1-20, while nearly 7% of the articles have cited 20-24 citations and only 2% of the articles have cited above 40 citations. The maximum citations were 63 while minimum was one.

Types of Documents cited: More than 89% of citations belonged to books and journals. While nearly 11% of citations belonged to reports, conference proceedings, seminars, papers, theses, M.Lib.Sc. dissertations, preprints, mimeographed papers, etc.

Geographical Distribution of Journals: It was observed that nearly 30% cited journals were from India, while more than 71% cited journals were from USA, UK, Germany, Australia, Nigeria, Brazil, Sweden, Netherlands, Japan, Ghana, Denmark, United Nations, Congo. Of the total cited journals, 82% of cited journals were from India, USA and UK, while 18% of cited journals were from other countries.

More citations were from the books and periodicals than the other type of material.

Ranganathan, S.R. was first in the rank of authors, and his prolegomena to Library Classification was first in the rank of titles. English language was dominating amongst the cited articles.

Only 7% citing authors had tendency of self citation, co-citation cases were 49, and Ranganathan-Kaula citations were prominent.

Eighty percent journal citations were from Library Science Journals. Each journal received on an average 7 citations. The source journal, Herald of Library Science ranked first among the cited journals.

2.2. STUDIES ON SPECIFIC JOURNALS

Few studies have been done on specific Journals with regard to the characteristics of the articles, the authors, book reviews, and such categories.

Derrick (1973) undertook a study of Educational Research, the official Journal of the National Foundation for Educational Research, UK. He reviewed the 1968, 1969 and 1970 issues of the Journal and analysed the distribution of the articles, the age-groups of the persons studied, methodologies of the design and the number of contributions from the various British Universities.

To consolidate the conclusions from his study in 1973, Derrick (1974) reviewed three other Journals for the same period 1968 to 1970.

Morris (1973) attempted a critical content analysis of the Book Reviews that appeared in the American Journal of Sociology, American Sociological Review and Social Forces in 20 years to assess the nature of the critiques and the particulars of the Reviewers.

Lazansfeld and Theiclens (1958) made a study about the literary productivity of academicians. Then findings were that out of 2451 Scholars in the field of Social Sciences studied, only 1377 had published 3 or more papers; apart from their dissertations, only 861 had published one book each.

2.3. INFERENCES FROM THE REVIEW OF RELATED LITERATURE

A review of the related literature has revealed that most of the Bibliometric studies are based on straight forward counting, enumeration, and applications of elementary mathematical and statistical methods. There are conceptual studies, empirical studies, theoretical modelling and application oriented studies. Most of the studies are

on Citation Analysis. The Bibliometric techniques are profitably used for the following:

- (1) to quantify the growth of a discipline and its sub-areas and growth of literature in the field;
- (2) to rank individual Authors, Periodicals, Institutions, etc;
- (3) to assess the productivity of an Author, Scientist, Organisation, Nation, etc;
- (4) to study authorship trends;
- (5) to identify core periodicals in a discipline and help in the acquisition policy of Libraries;
- (6) to identify the pattern of referencing by authors;
- (7) to develop norms of standardisation, etc.

From the review it was ascertained that there were a number of Bibliometric studies in the discipline of Science and Scientific Periodicals. There were also number of citation studies in many disciplines and with regard to some particular journals. Many journals have already been studied for the characteristics of the subject areas and contributors. But the present study "A Bibliometric Study of Perspectives in Education" is unique in that Bibliometric

study is applied to a particular Journal in Education, namely Perspectives in Education, which is a leading Indian Journal in the field. Further the coverage intended is comprehensive with analysis of the contributions, contributors and the cited references,

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CHAPTER III

RESEARCH DESIGN

- 3.0 *Statement of the Problem*
- 3.1 *Need for the Study*
- 3.2 *Scope and Significance of the Problem*
- 3.3 *Objectives*
- 3.4 *Hypotheses*
- 3.5 *Methodology*
- 3.6 *Sample*
- 3.7 *Scheme of Data Collection*
- 3.8 *Collection of Data*
- 3.9 *Scheme of Data Analysis*
- 3.10 *Delimitations*

CHAPTER III

RESEARCH DESIGN

3.0. STATEMENT OF THE PROBLEM

Buch, M.B. observed in 1974 that Educational Research in India was of recent origin and that it was yet to attain its maturity. But in 1991, in his IV Survey of Research in Education, Buch himself observes: "Educational Research in India can no longer be considered to be in its infancy. It has grown over a period of about 5 decades since the first thesis in Education was accepted by Bombay University".

The Journals and Journal articles, as the primary sources of current and upto-date information, play a very significant role, in aiding the researcher and the growth of research in every discipline, it is therefore important to keep vigil over the publication of journals, to bear in mind the objectives for which they were started to evaluate how far they are successful in realising their objectives and to trace the trend of the publishers and the contributors.

There are several ways of studying or surveying the trend of research in a particular field. One way of doing that, is to study the Doctoral or M.Phil or Master's theses

submitted to various Universities and Research Bodies. In view of the importance to and its inter-relatedness with research, periodic reviews of the articles that appear in leading journals will throw more light on the recent developments, trends, overlaps and gaps in the field of interest. Only very few studies have been undertaken on these lines so far. In view of the importance of the study of journals and the usefulness of the Bibliometric techniques in such studies, the investigator has chosen the problem: "A Bibliometric Study of the "Perspectives in Education": Journal of the Society for Educational Research and Development.

3.1. NEED FOR THE STUDY

"If a secret ballot is to be held among the Indian Scientists asking their opinion about the state of Indian Scientific Journals, there would be unanimity about their poor quality". The above comment was from a former President of the National Science Academy during a discussion about the health of Indian Scientific Journals. Some of the observations made during the discussions were: 98% of Indian Medical Research is never read by the Western Doctors. Absence of healthy peer review practices and the absence of quality control measures have to be pondered over.

The rat race for promotions and awards has resulted in the sprouting of 'shops' to publish articles. Few journals from some interior parts of India publish papers on payment of 'page charges' or 'processing charges'. The author points out that the situation is the same for other disciplines also. The need for a close watch on the nature and content of the articles and their relevance to the aims and objectives of the journal are aptly justified by the above.

The Journal Perspectives in Education has completed seven years of uninterrupted publication. A quantitative study of the nature of the Contributions and their subject areas, the Contributors and their positions, and the pattern of the Cited References will be of help to the Publishers and the Educationists to know the present state of affairs of the journal. It will also indicate whether the aims and objecties of the journal have been realised, or, how far they are from realising them. An appraisal at this stage will be useful to bring about revision in the editorial policies and effect improvements in future in the layout of the journal. The study is more relevant and purposeful in the context of a prevailing opinion that each number of the Perspectives in Education should devote itself to a particular theme or issue in education.

3.2. SCOPE AND SIGNIFICANCE OF THE PROBLEM

Many journals are published abroad and in India in the field of Education. Of all the Journals, why this particular Journal has been chosen for study? What is the criteria for selecting this Journal? are questions to be answered. There may be Journals and Journals, but *Perspectives in Education* proclaims in its very first issue that it would seek to be different. It would be different in its efforts to encourage contributions of interdisciplinary nature; it would be different in encouraging contributions whose treatment of the problem will have socio-cultural - historical perspectives; it would be different in freeing the study of Education from the heavy bias towards pedagogic component.

Further, the *Perspectives in Education* assures that it would focus on ideas, experiences, innovative practices and research findings, concerning Education appropriate to Third World.

In addition to the above, Buch, the renowned educationist who has successfully brought out the various surveys of Research in Education upto the IV Survey in 1991, is its Chief Editor and its editors are specialists in their chosen fields and working in reputed institutions. Whether

the trend of research in the 29 areas as classified by Buch, is reflected in the contributions to the Perspectives in Education will certainly be a matter of interest.

3.3 OBJECTIVES

Following are the objectives of the Study:

1. To assess whether the Perspectives in Education has realised its objectives by finding out quantitatively:-
 - (a) how far the contributions published in the Perspectives in Education are Inter-disciplinary;
 - (b) the extent of involvement of Third World countries in the contributions;
 - (c) the Category-wise contributions viz., in the categories of Issues & Trends, Research, Communication, Comments & Criticism and Review.
2. To find out the dispersion of contributions as per the Buch's Classification of subject-areas in his IV Survey of Research in Education and thereby ascertain the areas which attract more attention from the contributors and the areas which show 'gaps', if any.

3. To calculate the average time-lag between the receipt of manuscript and its publication in Perspectives in Education.
4. To explore the trend towards multiple authorship with reference to the contributions in Perspectives in Education.
5. To find out the productivity of authors contributing to Perspectives in Education in the course of its 7 years of Publication.
6. To analyse the contributors with regard to their -
 - (a) Country
 - (b) If Indian, State
 - (c) Sex
 - (d) Institutional affinity; and
 - (e) Positionand assess their contributions quantitatively on the basis of above factors.
7. To carry out an analysis of the cited references with regard to their distribution -
 - (a) By Quantity;
 - (b) By Form; and
 - (c) By Age

so as to find out whether any pattern could be seen in the citations of the contributors to Perspectives in Education and whether the result is comparable to the results of earlier studies on cited references in Scientific Periodicals.

3.4. HYPOTHESES

The following hypotheses were formulated:

1. The Journal Perspectives in Education has realized its objectives as -
 - (a) majority of the contributions are inter-disciplinary (or) multi-disciplinary;
 - (b) contributions from Third World Countries are significant;
 - (c) Perspectives in Education is an effective forum for dialogue and debate among scholars and educationists.
2. There is correlation between the dispersions of the content areas of the Journal Perspectives in Education and the trend depicted in the IV Survey of Research in Education.

3. There is an increasing trend towards multiple authorship.
4. Authors of the articles in Perspectives in Education prefer to cite more from journals.
5. Cited references from Journals are of recent origin.
6. The Time-lag between the receipt of manuscript and its publication in Perspectives in Education is very high.

3.5. METHODOLOGY

Bibliometric techniques including citation counts were followed for analysing -

- (a) the contributions in the Perspectives in Education;
- (b) the contributors to the Perspectives in Education;
- (c) the cited references that appeared at the end of each article in Perspectives in Education.

3.6. SAMPLE

All the 28 Issues of the Perspectives in Education were used in the present study.

3.7. SCHEME OF DATA COLLECTION

The seven volumes of the Perspectives in Education form the source of data.

The investigator took advantage of the facility of a PC/AT and instead of manually preparing a master tabulation with all the required details, the Computer was judiciously used for collection, storage, and sorting out the various data.

Using DBase III Plus, 2 databases or files - one for the bibliographic elements of the articles in the Perspectives in Education: PIE - and the other for the references cited under each article in the Perspectives in Education: REFPPIE, were created.

The following elements were entered in the PIE file:

- (1) Volume, Issue & Article Number
- (2) Author (separate fields for Author1, Author2, Author3, etc)
- (3) Sex (for Author1, 2, 3, etc)
- (4) Country
- (5) State
- (6) Institution (as Research, University, College, Government Body, etc)
- (7) Position (as Professor, Reader, Director, Research Scholar, etc)
- (8) Content Area (as per Buch's Classification)
- (9) Title
- (10) Third World (Name of the Country)
- (11) Inter-disciplinary
- (12) Category (Issues & Trends, Research, Communication, Comments & Criticism, Reviews, etc)

The second file REFPIE had the following elements:-

- (1) Volume, Issue, Article Number
- (2) Form (Book, Journal, Reports & Records, Theses, Explanatory)
- (3) Year (of the cited reference)
- (4) Title (If Journal)
- (5) Origin (Country of the Cited Reference)

3.8. COLLECTION OF DATA

From the data stored in the above two files, data sheets providing the following information were made out by suitable programme:-

I CONTRIBUTIONS						
Vol.No.	Author	Title	Buch Subject Area	Inter- discip- linery	Third World	Category

II CONTRIBUTORS						
Vol.No.	Author	Sex	Country of Origin	State	Insti- tution	Position Manus- cript Date

III

CITED REFERENCES

Vol.No.	Form	Year of Cited References	Origin	JTitle (for Journal only)
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Further various lists such as list of Authors in alphabetical order; list of Institutions; were prepared.

3.9 SCHEME OF DATA ANALYSIS

The data from the above tabulations were analysed as per the following scheme:

Distribution of Contributions - Category-wise: The number of articles out of the total of 146 articles falling under each category were calculated and percentage of articles in each category found out. For distribution of Contributors & Cited References: The raw score was converted into percentage. In the case of the Distribution of Time-lag, the Weighted Arithmetic Mean was worked out; with regard to the Inter-disciplinary nature of the articles, the titles themselves were expressive enough and the abstracts of the articles were also studied carefully to determine inter-disciplinarity.

The articles were classified into one of the 29 areas suggested by Buch, in his IV Survey of Research in Education. The 29 Subject-areas as per Buch Classification are given below:

- (1) Philosophy of Education
- (2) History of Education
- (3) Sociology of Education
- (4) Comparative Education
- (5) Economics of Education
- (6) Psychology of Education
- (7) Creative Functioning
- (8) Guidance in Counselling
- (9) Tests & Measurements
- (10) Curriculum
- (11) Language Education
- (12) Social Science Education
- (13) Mathematics Education
- (14) Science Education
- (15) Educational Technology
- (16) Correlates of Achievement
- (17) Educational Evaluation Examination
- (18) Teacher Education
- (19) Teaching
- (20) Educational Management
- (21) Non-formal
- (22) Adult Education
- (23) Early Childhood Education
- (24) Elementary Education
- (25) Vocational & Technical Education
- (26) Special Education
- (27) Higher Education
- (28) Women's Education
- (29) Education of the Disadvantaged

Out of the 29 areas, the following areas were clubbed together for the purpose of our investigation

1. Adult Education, Non-formal Education, clubbed together as Adult & Non-formal Education.
2. Creative Functioning and Psychology of Education clubbed as Psychology of Education.

Thus the 146 articles in the Perspectives in Education were classified under one of the above 27 subject-areas. Multiple copies of the author, title and the Buch subject-assigned were sent to Members of the Faculty of Education in the University and their views were also sought in ascertaining the relevant subject-area. In the same way, the subjects constituting the inter-disciplinary nature were also ascertained from experts in the field of Education. Thus the reliability of the classification was established. The trend of the Research work in Education surveyed by Buch and the trend of the Content areas of the articles in Perspectives in Education were compared by converting the raw score into percentage and rank correlation found out. For most part of the analysis, the raw scores were converted into percentage; graphs and pictorial representations were also drawn to determine the trend, for instance, single author and multiple authorship.

3.10. DELIMITATIONS OF THE STUDY

1. The study covered only the 28 issues of the Perspectives in Education, published during the period 1985 to 1991.
2. The study included only the 146 articles appearing under the following categories only:
 - (a) Issues & Trends
 - (b) Research
 - (c) Communications
3. Overlap of the subject areas is given due consideration. A careful study of the abstract is made in such cases and the classification is made on the basis of the major objectives of the article.
4. The analysis of Cited References with regard to the Age of the references was restricted only to the references from Journal literature.

CHAPTER IV

ANALYSIS & DISCUSSION

4.0 Introduction

4.1 Analysis of Contributions

4.1.1 Category-wise Distribution

4.1.2 .. Inter-disciplinary Nature of the Contributions

4.1.3 Dispersion of the Content Areas of the Contribution

4.1.4 Distribution of Contributions Focussing Third World Countries

4.1.5 Authorship Trend in Perspectives in Education

4.1.6 Analysis of Time-lag

4.1.7 Distribution of Productivity of Authors

4.2 Analysis of Contributors

4.2.1 Distribution of Contributors: Country-wise

4.2.1.1 Distribution of Contributors: State-wise

4.2.2 Distribution of Contributors: Institution-wise

4.2.3 Distribution of Contributors: Position-wise

4.3 Analysis of Cited References

4.3.1 Distribution of Cited References by Quantity

4.3.2 Distribution of Cited References by Form

4.3.3 Distribution of Cited References by Age

CHAPTER IV

ANALYSIS AND DISCUSSION

4.0. INTRODUCTION

This part deals with Data Analysis and discussion. The Analysis is made up of:-

1. Analysis of the contributions;
2. Analysis of the contributors; and
3. Analysis of the cited references.

4.1. ANALYSIS OF THE CONTRIBUTIONS

4.1.1. Category-wise Distribution :

The Perspectives in Education has systematically planned its contributions to fall under five categories:

- (a) Issues & Trends: Meant for theoretical or empirical essays, view points and review articles;
- (b) Research: Reports of Research Studies;
- (c) Comments & Criticisms: To accommodate critiques of articles published in the Perspectives in Education and rejoinders by the authors;

- (d) Communication: Brief notes on educational policies, problems and practices in third world countries; and
- (e) Reviews: Brief critical reviews of books and articles.

Table-1 shows the Category-wise contributions published in Volumes 1 to 7 from 1985-91. Article-wise, Issues & Trends has received major attention from the contributors accounting for 44.44% of the contributions in 7 years followed far behind by Reviews 26.27%, Research 24.24%, Communications 5.05% with Comments & Criticisms drawing a blank.

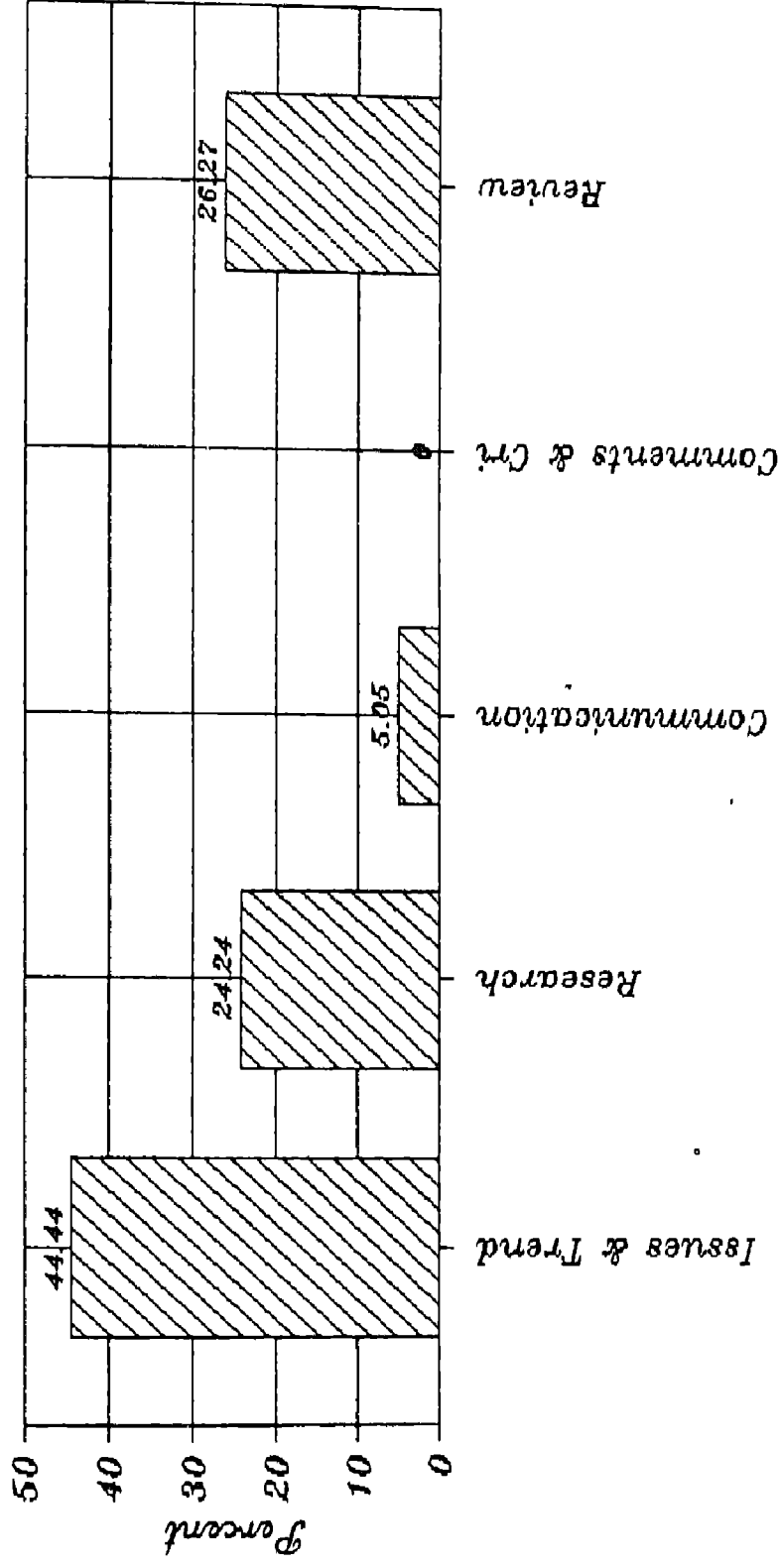
Table - 1
Analysis of Contributions: Category-Wise

Volume	Year	Contributions in											
		Issues & Trends		Research		Communication		Com. & Criti.		Review		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Vol.1	1985	17	58.62	2	6.9	2	6.9	nil	--	8	27.58	29	100
Vol.2	1986	13	44.83	7	24.14	1	3.44	nil	--	8	27.59	31	100
Vol.3	1987	11	34.38	10	31.25	-	--	nil	--	11	34.37	32	100
Vol.4	1988	12	44.44	6	22.22	1	3.70	nil	--	8	29.64	27	100
Vol.5	1989	13	48.15	6	22.22	2	7.41	nil	--	6	22.22	27	100
Vol.6	1990	12	44.44	8	29.64	1	3.70	nil	--	6	22.22	27	100
Vol.7	1991	10	37.04	9	33.33	3	11.11	nil	--	5	18.52	27	100
Total		88	44.44	48	24.24	10	5.05	nil	--	52	26.27	198	100

The maximum contribution under the category Issues & Trends is 58.62% in 1985 and the minimum is 34.38% in 1987; under Research, the maximum and minimum percentages are 33.33 in 1991 and 6.89 in 1985 respectively. The figures for Communication are 11.11% in 1991 and 3.33% in 1985 respectively. For Reviews 34.37% is the maximum in 1987 and 18.52% is the minimum in 1989.

The most surprising feature of the Category-wise distribution is the NIL response from the authors,

Figure 1
DISTRIBUTION OF CONTRIBUTIONS: CATEGORY-WISE



educationists, academics and general readers to the Comments & Criticism category, which was meant for lively debate and discussion between the Scholars.

The journal articles are vehicles for communication between the scholars and by initiating the process of critical interaction between the author, subject specialists and the alert readers, they help the journal to attain the basic aim of the journal to provide an international forum for discussions on problems of education.

The editorial note in Volume 3 No.1 has noted this in its evaluation of the journal on its completing 2 years. The note observes, "In spite of our intention of providing a forum for active dialogue among the members of the professional community, no critiques or comments based on articles published in the journal have been forthcoming". The note further adds: "Our plan now is to specially invite comments and criticism based on articles we publish from scholars working in allied areas".

In spite of this, the fact that no such critiques have been forthcoming in the subsequent years points only to the rather indifferent attitude of the professional community in the field of education.

It is to be concluded that there is no effective debate and dialogue between the scholars contributing to the perspectives in Education or between the author and the interested readers. Thus the forum meant for active discussion between the scholars and the specialists has not been made use of during the seven years of publication of the journal.

It is of interest to note here that an article by Okhojie "Economics of Vocational Education" has been published twice, once in Volume 4, No.3 in 1988 and again in Volume 6, No.3 in 1990. Neither the publisher had issued any note for this republication, nor any alert reader has raised the issue.

Under the category of Communication also, the response is poor as the number of articles that appeared in Volume order is only 2, 1, 0, 1, 2, 1 & 3; the contribution in percentage being 6.9, 3.44, 0, 3.70, 7.41, 3.7 & 11.1. The overall percentage being just 5.05. This category was meant to publish brief notes about the educational policies, problems & practices in the Third World Countries. Of the ten articles published, the focus is on India in seven articles; one on Thailand; one on Sri Lanka; and one on Australia.

The journal has secured more number of theoretical or empirical essays putting forth view points. Fairly good number of research studies have been discussed. 52 Books have been reviewed during the period of seven years.

4.1.2. Inter-disciplinary nature of the Contributions

In ancient times, whether in India or Greece, scholars were supposed to have knowledge of all basic disciplines like classical language, Grammar, Philosophy, Astronomy, Logic and so on. The knowledge explosion has made any strict demarcation of the boundaries between the various subjects impossible. The diffusion of knowledge from one area into another has made the knowledge spectrum wider and more colourful.

Discussing the importance of Inter-disciplinary research, Vedanayagam (1985) observes: "Education is mainly a science of growth and development. Its main concern should be the improvement of the social, political, economic, scientific and moral spheres of human life. It has to utilise the methods, models and concepts developed in other disciplines to achieve this objective. According to her, "Educational Research must encompass the three major dimensions, such as, Factual or Scientific, Applicational or Practical and Philosophical or Conceptual". The inter-

disciplinary treatment of education will thus enable it to be at once a Science, a Technology and a Philosophy and will make it comprehensive and integrative.

The importance of inter-disciplinary research in education has been recognised by the authorities like the University Grants Commission and the Indian Council for Social Science Research, and they encourage inter-disciplinary studies by funding on priority basis.

In the period of infancy of its development, educational research was the concern of only the educationists. While many flourishing departments of Education went on producing a plethora of studies in the area of pedagogy, they showed complete lack of interest in viewing educational system as a sub-system of the larger social system, linked with the latter in every fibre of its being. While education was marginalised in the Social Sciences, Socio-economic analysis has been marginalised in Education.

Gradually, the subject got widened by the increased interest evinced by Psychologists, Sociologists and generally, the Social Scientists. This awareness of the

significance of the social, economic and political elements in the sorting out of the educational problems, of the need for consideration of socio-economic factors before framing the educational policies of the country exposed the social reality to the policy-makers, policy implementors and the people as a whole. This has resulted in a radical change in the attitude, outlook, aims and objectives of the various educational endeavours. Methods, models and concepts which were once considered unique to a particular discipline cut across the rigidity of the boundaries of the various disciplines.

The co-operation, collaboration and interaction between two or more disciplines towards a better understanding of a social problem and the efforts towards finding solutions for such problems transcending the so-called boundaries of the concerned disciplines are called Inter-disciplinary. The approach therefore involves interaction and integration of the concepts and methods of different disciplines leading to a wholistic interpretation of a problem.

The terms inter-disciplinary and multi-disciplinary are not strictly synonymous. Multi-disciplinary refers to the involvement of a number of disciplines studying a problem from the points of view of the different disciplines. The

term Inter-disciplinary refers to the interaction between the disciplines apart from the harnessing of the resources of several disciplines.

Educational Research has shown certain welcome trends in the 20th Century. The following tabulation by verghese points out the trend towards more empirical orientation from theoretical orientation. Contributions from inter-disciplinary perspectives have registered an increase and uni-disciplinary contributions are on the decrease. In a similar way there is a shift from individual to team work.

Type	1900-1930 (%)	1931-1960 (%)
Empirical Orientation	79	93
Theoretical Orientation	21	7
Uni-disciplinary Contribution	52	38
Inter-disciplinary Contribution	48	62
Individual Efforts	75	45
Team Efforts	25	55

Büch has analysed the Doctoral studies undertaken by the Education Departments and other departments over the last five decades. The analysis reveals the increased interest evinced by the scholars from other fields in the

various issues related to Education. Such studies have examined the problems related to Education in an inter-disciplinary context. The decade-wise and discipline-wise statistics and their analysis showed that during 1983-88, 406 studies were identified to the already identified 611 studies upto 1983.

The Journal Perspectives in Education was started with a view to free education from the narrow confines of a strictly pedagogic component. It was emphasised that it would endeavour to encourage contributions that would treat educational problems from socio-historic perspectives.

The investigator analysed the various contributions for finding out how much of the contributions were inter-disciplinary or multi-disciplinary and how much dwelt on 'Education' alone.

A careful perusal of the titles, as well as the brief abstracts showed clearly that out of the 146 articles, only 23 could not be termed inter-disciplinary. That is, only 15.75% of the articles were confining themselves to Education. 84.25% of the contributions are inter-disciplinary in nature. These articles made use of the concepts, methods and models from other disciplines in their treatment of the problem.

Table - 2

Distribution of Articles in the "Perspectives in Education"
Inter-disciplinary & Education only

No. of Articles Inter-disciplinary/ Multi-disciplinary	No. of Articles Confining to Education only	Total
123	23	146
"		
(%) 85.25	15.75	100

Table-3 presents the Distribution of Inter-disciplinary articles and the disciplines that are interacting.

The treatment of the subjects of the articles is Inter-disciplinary not only because of the Perspective - Historical, Philosophical, Sociological, Methodological, but also because of the combination of the various aspects of the subject, such as Planning, Sociology, Management and also an inter-mingling of the perspectives like Socio-Political-Economic perspectives in one and the same article. Most of the inter-disciplinary articles make immense use of the statistical and Research Methodological concepts.

There are 16 articles which treat the subject in the Historical perspective.

TABLE - 3

Distribution of various subjects in Inter-disciplinary
Articles in Perspectives in Education

S.No.	Perspective/ Subject of Interaction	Number of Articles	Percentage out of Total Number of Articles
1.	Historical	16	13.00
2.	Philosophical	4	3.25
3.	Psychological	15	12.20
4.	Sociological	23	18.70
5.	Methodological	10	8.13
6.	Economics of Education	28	22.76
7.	Management	10	8.13
8.	Technology	4	3.25
9.	Women's Studies	4	3.25
10.	Political Science	3	2.44
11.	Social Science & Social Work	3	2.44
12.	Mass Media	2	1.64
13.	Peace Science	1	0.81
Total		123	100.00

Sociologically viewed, 23 articles constitute 18.7% of the inter-disciplinary articles; and the maximum number of

articles contributed fall in the subject area of Economics of Education accounting for 22.76%. Psychological perspective is prevalent in 15 articles (12.2%) and Philosophical treatment is given to only 4 articles (3.25%). Methodological concepts of Statistics and Research Methodology are used in the treatment of 10 articles (8.13%)..

Among the Inter-disciplinary articles, 24 discuss the economic aspects of Education. Even among these, 5 are concerned with Planning, 4 with Socio-Economic conditions, while 2 are on Socio-Political & Economic aspects. Thus such studies are in turn with the modern stress on social relevance and the concern for the society at large in educational issues and decisions on educational problems. One of the articles discusses the economics of Vocational Education and another emphasises the Technology.

'Management' has now established itself as a separate major discipline. Business Management, Hospital Management, Bank Management, Library Management, Educational Management, which are sub-disciplines under Management, are all in the process of evolution and may claim a separate status in future. The Management aspects of education in their various ramifications are focussed in 9 articles. The

latest concept of Time Management, as practised by the students and teachers, is analysed by one article and Systems Management as applied to Agriculture is discussed by one article.

The contributions that discuss education from the view points of Women, Mass-media, Technology, Peace Science, etc., bear testimony to the awareness of the contributors to the modern trends and pressing needs of the society.

It is concluded that the journal's efforts to encourage inter-disciplinary studies have proved successful on the basis of the quantity and diversity of the inter-disciplinary articles that appeared in the Perspectives in Education.

4.1.3. Dispersion of Content-areas of the Contributions:

In the formulation of national educational policies, a knowledge of the distribution of research areas will be important. It serves as a guide for identifying priority areas for further encouragement and the motivation needed for bringing up studies in areas where there is less concentration. A clear picture of the trend of development of studies in various subject areas in a field is provided

by assessing the research studies by scholars in Universities, Research Institutes and other Professional Bodies. This could also be ascertained by periodic reviewing of the contributions in leading journals for their content or subject areas.

The Encyclopedia of Educational Research (1970) classified the various subject areas in Education as belonging to Foundation area, Function area, Subject area, Personnel area and Administrative area. Each of the above five areas had a number of sub-areas as shown below:

Foundation Area	Developmental Psychology	Psychology of Learning	Human Behaviour	Social Foundation	
Function Area	Curriculum	Instruction	Special Education	Educational Measurement	Research
Subject Area	Tool Subjects	Cultural Subjects	Vocational Subjects		
Personnel Area	Student	Teacher Education	Teacher Personnel		
Administrative Area	Levels of Education	School System	School Administration	Educational Finance	Educational Facilities

But Buch followed his own scheme of classification of various content areas in Education. He followed a scheme of classification in the three earlier surveys and that scheme was adequate and appropriate at that time. But in the IV Survey covering the period 1981-88, he has reviewed his earlier schemes and formulated a new one, so as to depict the true trend of research in various sub-areas of Education. He classified the content areas into 29 Categories, as shown in the Table- 4, taking into account the thrust of work on the various areas of research where

there were substantial research. For instance, Sociology of Education was trifurcated by giving independent status to Women's Education, and Education of the disadvantaged.

It is to be noted that it is impossible to define distinctly each content area as there are overlappings, resulting in vagueness and confusion. However, in such cases, the objective was studied carefully, identify the major objective and allot it to the work. Anyhow, cross references were provided in such cases though the abstracts were placed only in the major Category.

The investigator assigned the Buch subject area to the various contributions after a careful study of the abstracts of the articles. Multiple copies of the author, title and subject area assigned were circulated to the members of the Department of Education for their opinion and the classification finalised later. The 29 subject areas of Buch's classification were reduced to 27 in the study as Psychology of Education and Creativity were coupled and Non-formal and Adult Education were also clubbed together.

The analysis of the contributions with respect to the dispersion of the content areas as per the classification scheme of Buch provides useful results.

TABLE - 4

Distribution of the Content-areas of the Contributions
in Perspectives in Education: Ranking Order

Content Area	Number of Articles	Percentage of Contributions
Adult & Non-formal Education	23	15.75
Sociology of Education	17	11.64
Higher Education	13	8.90
Teacher Education	11	7.53
Educational Management	10	6.85
Psychology of Education/ Creative Functioning	9	6.16
Economics of Education	8	5.48
Philosophy of Education	8	5.48
History of Education	7	4.80
Elementary Education	6	4.11
Educational Technology	5	3.42
Women's Education	4	2.74
Curriculum	4	2.74
Tests & Measurements	4	2.74
Teaching	3	2.06
Language Education	2	1.38
Science Education	2	1.38
Correlates & Achievement	2	1.38
Education of the Disadvantaged	2	1.38
Social Science Education	1	0.68
Mathematics Education	1	0.68
Educational Evaluation		
Examination	1	0.68
Early Childhood Education	1	0.68
Special Education	1	0.68
Vocational & Technical Education	1	0.68
Comparative Education	-	--
Guidance & Counselling	-	--
Total	146	100.00

The various subject areas, in the order of their
number of contributions in the Perspectives in Education

are ranked in Table - 4. It reveals that there are contributions pertaining to all the 27 areas (as specified already) except in Comparative Education and Guidance & Counseling. The maximum number of articles i.e., 23 belong to Non-formal & Adult Education and the number of articles in 6 areas is the minimum, i.e., only one.

Adult & Non-formal Education, Sociology of Education, Higher Education, Teacher Education, Educational Management and Psychology of Education (6 areas) account for 56.83%; Economics of Education, Philosophy of Education, History of Education, Elementary Education, Educational Technology, Women's Education, Curriculum and Tests & Measurements (8 areas) constitute 31.51% and the remaining other subject areas, the balance of 11.66%.

Table - 5, compares the number of studies in each area in Buch's IV Survey in 1981-88 with the number of articles falling in the various Buch subject areas. A Spearman rank correlation between the two, that is, dispersion of the contributions in Perspectives in Education classified into Buch's scheme and the number of studies made during 1981-88 reported in the IV Survey shows a strong positive correlation between the two.

TABLE - 5

Distribution of Content-areas in IV Survey (1983-88)
and in the Various Articles in Perspectives in
Education, As per Buch's Classification

[illegible]

Spearman's Rank Order Correlation

$$P = 1 - \left[\frac{6 \sum D^2}{N (N^2 - 1)} \right]$$

$$P = 1 - \frac{6 \times 1299.5}{27 \times 728}$$

$$p = 0.603$$

4.1.4. Distribution of Contributions Focussing Third World Countries:

The term 'Third World' refers to the developing countries of Africa, Asia and Latin America, especially those not politically aligned with Communist or Western Nations. The term is also used for politically neutral countries which are also called 'neutral nations' or 'non-aligned countries'. They do not regularly support the First World - United States or the Western Bloc - or the Second World - U.S.S.R and the Communist Bloc.

The Third World consists of about 120 countries which have more than half the world's population. About 60% of the people in the Third World live in extreme poverty. Poverty, illiteracy, disease and rapid population growth are some of the major problems common to the Third World.

TABLE - 6
Distribution of Articles with focus on Third World Countries

S.No.	Name of the Third World Country	Number of Articles	Percentage of Distribution
1.	Third World - General	7	5.6
2.	Asia - General	5	4.0
3.	East Africa	1	0.8
4.	South Africa	1	0.8
5.	West Indies	3	2.4
6.	Tanzania	11	8.8
7.	Nigeria	7	5.6
8.	Thailand	1	0.8
9.	Papua New Guinea	2	1.6
10.	Bangladesh	2	1.6
11.	Sri Lanka	7	5.6
12.	Chile	1	0.8
13.	Brazil	1	0.8
14.	India	76	60.8
Total		125	100.0

The journal's basic policy is to give priority to dissemination to ideas, innovative practices and research findings concerning education in the Third World. The World

Bank, the United Nations Development Programme, and other International Organisations are striving to speed up the process of development in the Third World. The efforts of the journal will go a long way in improving the educational facilities and bring the situation to the notice of the authorities in those countries as well as the above agencies.

As illiteracy is a major hazard and hurdle to development, the journal's focus on educational problems of the Third World nations will help to mitigate the plight of the 'have nots'.

Table - 6, provides information regarding the Distribution of Articles with focus on Third World Countries. 125 out of 146 articles focus attention on educational issues related to the Third World, i.e., 85.62% are about the conditions prevailing in Third World countries. Though about 2.05% are about India, one cannot deny the fact that India is also a developing country!

4.1.5. Authorship Trend in Perspectives in Education:

One significant factor in scientific communication is concerned with the way in which a scientist interacts with his colleagues in the production and dissemination of his

research work. Collaboration efforts or team research has become the order of the day in many disciplines. In Social Sciences Research also, increasing attention is focussed on such collaboration and various agencies of research in Social Sciences like, the University Grants Commission and the Indian Council of Social Sciences Research are providing financial assistance for such endeavours.

TABLE - 7

Distribution of Contributions on the basis of Authorship

Volume	Year	Contributions Authored by			Total
		Single Author	Two Authors	Three Authors	
Vol.1	1985	18	2	1	21
Vol.2	1986	17	3	1	21
Vol.3	1987	16	5	-	21
Vol.4	1988	14	5	-	19
Vol.5	1989	18	3	-	21
Vol.6	1990	18	3	-	21
Vol.7	1991	18	3	1	22
Total No. of Articles		119	24	3	146
Total Percentage of Contributions		81.51	16.44	2.05	100

The Table - 7, shows the distribution of authorship of the contributions to Perspectives in Education. Out of the 146 articles, 119 articles are by single author, 24 articles by two authors and only 3 articles by three authors. That is, in the course of seven years 81.51% of the contributions are from single authors, 16.44% by two authors and only 2.15% from three authors. There is also no marked difference in the trend during the period. Then it could be observed that single author contributions out-number the multiple author contributions.

The trend in the scientific disciplines is just the reverse with an increasing trend towards multiple authorship has been established by various studies.

4.1.6. Analysis of Time-lag between the Receipt of Manuscript and its Publication

The Perspectives in Education follows a laudable practice of indicating the date of receipt of manuscript at the end of each article.

Great advancements in modern technology especially in the field of communication has narrowed down the constraints of space and time. The new information must reach the user at the earliest time in an expeditious manner, as otherwise it may become useless or stale.

Table - 8

Computation of Weighted Arithmetic Mean of the
Time-lag Between the Receipt of Manuscript
and its Publications in Perspectives
in Education

Time-lag in Months (c)	Frequency (f)	Cumulative Frequency (cf)
0 - 2	4	4.0
3 - 4	27	94.5
5 - 6	38	209.0
7 - 8	24	180.0
9 - 10	15	142.5
11 - 12	8	92.0
13 - 14	0	0.0
15 - 16	1	15.5
17 - 18	4	70.0
19 - 20	3	58.5
21 - 22	1	21.5
23 - 24	3	70.5
25 - 26	1	25.5
Weighted Arithmetic Mean Index for Time-lag		= 6.85 Months

The time-lag between the researcher's work and its reaching the users hands consists of a number of stages:

- (a) The research time taken by the researcher.
- (b) Publishing time: the time taken by the publisher for the publication of an article from the date of its receipt.
- (c) Abstracting time: the time taken for the information to reach secondary information sources such as abstracting and indexing periodicals.

- (d) Librarytime: the time taken by the publisher in sending the periodical to the subscriber. Minimum time at each stage listed above will ensure quicker dissemination of the information.

The Table - 8 analyses the time-lag between the receipt of manuscript by the Journal and its publication in the Perspectives in Education. The publishing time varies between 2 months as the minimum and 25 months as the maximum. The weighted Arithmetic Mean of time worked out to 6.85 months.

The contributor is always eager to get his article published at the earliest as otherwise the thought, concept or ideas embedded in his article may get outmoded if the publication is delayed unduly. The delay may even deprive the author of the credit due to him for his innovations.

The publishing time is needed for referring and editing, both of which are essential to maintain the standards of the journal. Further, more the number of articles received, the more will be the problem for the publisher in selecting some for immediate publication; reserving some for subsequent publications; and eliminating a few if they are below standard or may not be appropriate for publication on a future data.

Paul Mohan Roy's study on the publishing time with regard to the Indian Journal of Pure and Applied Physics and the Indian Journal of Physics gave the following figures:

Table - 9

Time Lag in the Case of Indian Journal of
Pure and Applied Physics and
Indian Journal of Physics

Journal	Publishing Time in Months		
	1971	1976	1981
Indian Journal of Pure & Applied Physics	7.0	10.25	11
Indian Journal of Physics	5.5	8.00	12

The study showed that there was an increase in the publishing time from 71 to 76 and 76 to 81 in both the cases. Comparing this with foreign Journals in Physics, he concluded that the publishing time in the case of Indian Journals in Physics was needlessly long.

Jain and Goel (1969) estimated a time-lag of 4.75 to 19.33 months in the case of 10 Agricultural Journals which originated from various countries. In the case of Indian Journal of Agricultural Sciences, it was about 9 months in 1971 and 14 months in 1981.

From the above figures it could be seen that the time-lag in the case of Perspectives in Education is optimum as it is only 6.85 months.

From Volume 7, No.4, the publisher has discontinued the practice of indicating the date of receipt of manuscripts. The investigator is of the opinion that the system may be continued in the interest of the contributors and readers.

4.1.7.Distribution of Productivity of Authors

The analysis of the contributions in the Perspectives in Education reveals that only 19 authors have contributed more than one article to Perspectives in Education in its 7 years of publication. Out of 176 contributors, 157 have contributed only one article; 14 have contributed 2 articles; 3 have contributed 3 articles; one author has contributed 4 articles and only one has contributed 6 articles. Percentage wise, 89.2% has contributed only a single article; 8% has contributed 2 articles; 1.7% has contributed 3 articles and the balance more than 3 articles.

Table - 10
Distribution of Contributions Among the Authors

No. of Articles Contributed N	Authors who have Contributed N Articles	Percentage of Authors Contributing N Articles to the Total No. of Authors
6	1	0.69
4 "	1	0.69
3	3	2.07
2	14	9.66
1	125	86.89

No generalisation on the productivity of authors could be made on the basis of an author's contribution to a single journal only over a period of 7 years. However, to arrive at a conclusion about the attitude of authors in their choosing the journal for their contributions, the investigator had an interview with a cross section of contributors belonging to various fields. The views expressed by them may help the publishers to formulate their policies on publication.

1. Authors prefer Journals which respond quickly to their articles - they may publish it and inform accordingly or return the articles promptly if for some reason or other they are not able to publish them.

2. They prefer journals which give a decent honorarium to their work.
3. They want to receive more number of reprints.
4. They wish to receive not only the reprints of their articles, but the full issue of the Journal carrying their article.
5. Journals which notify the publication of articles in their earlier issues, 2 or 3 times before its actual publication are highly appreciated.
6. They generally prefer journals which are sure to publish their articles, on the basis of their previous experience with the journal.

On the basis of the above points, it is to be concluded that Perspectives in Education has to adopt more encouraging attitude towards its contributors.

4.2. ANALYSIS OF CONTRIBUTORS

An Analysis of the Contributors with regard to their Geographic Distribution, Position, Type of Institutions to which they are attached will throw more light on the status of the journal articles, their relevance to the aims and objectives of the journal.

The 28 issues of the Perspectives in Education during 1985 to 1991 has published 146 articles and the number of contributors works out to 144. Already an analysis of the contributions for productivity of authors has shown that 125 of the 144 contributors have contributed only one article, 14 have contributed 2, 3 have contributed 3 and only one has published 4 articles and only one 6 articles.

Analysing the contributors sex-wise, there are only 35 Women against 109 Men contributors. As in all the other strata of the society in the writing of articles to the journal Perspectives in Education also, Women lag behind. More number of Women contributors will enable them to help Womenfolk effectively participate in the developmental process as well as in changing their subjugated position in the society. There are only 3 articles in the area of Women's Education and all these three have been written only by Women.

The overall analysis of the contributors shows that among the contributors there are former Vice-Chancellors and distinguished Educationists, Economists, Magsaysay Award Winner, Rector of United Nations University. There are contributors who are themselves journal editors - editors of Manas, Education, Technology and Human Resource Development

and Comparative Educational Review. The reputation of the journal is enhanced by such contributors and this gives added credibility to the articles written by other contributors.

4.2.1. Distribution of Contributors: Country-wise:

Table - 11 shows the distribution of the contributors among different countries. Contributors are from the developed countries like the U.S.A., U.K., Switzerland as well as from African countries like Zambia, Tanzania, Nigeria, etc.

For the purpose of analysis, the country of origin is taken as the country where they are presently working. For instance, Gamage a Sri Lankan is working as a Lecturer in Australia and hence Australia is taken as the country of the contributor.

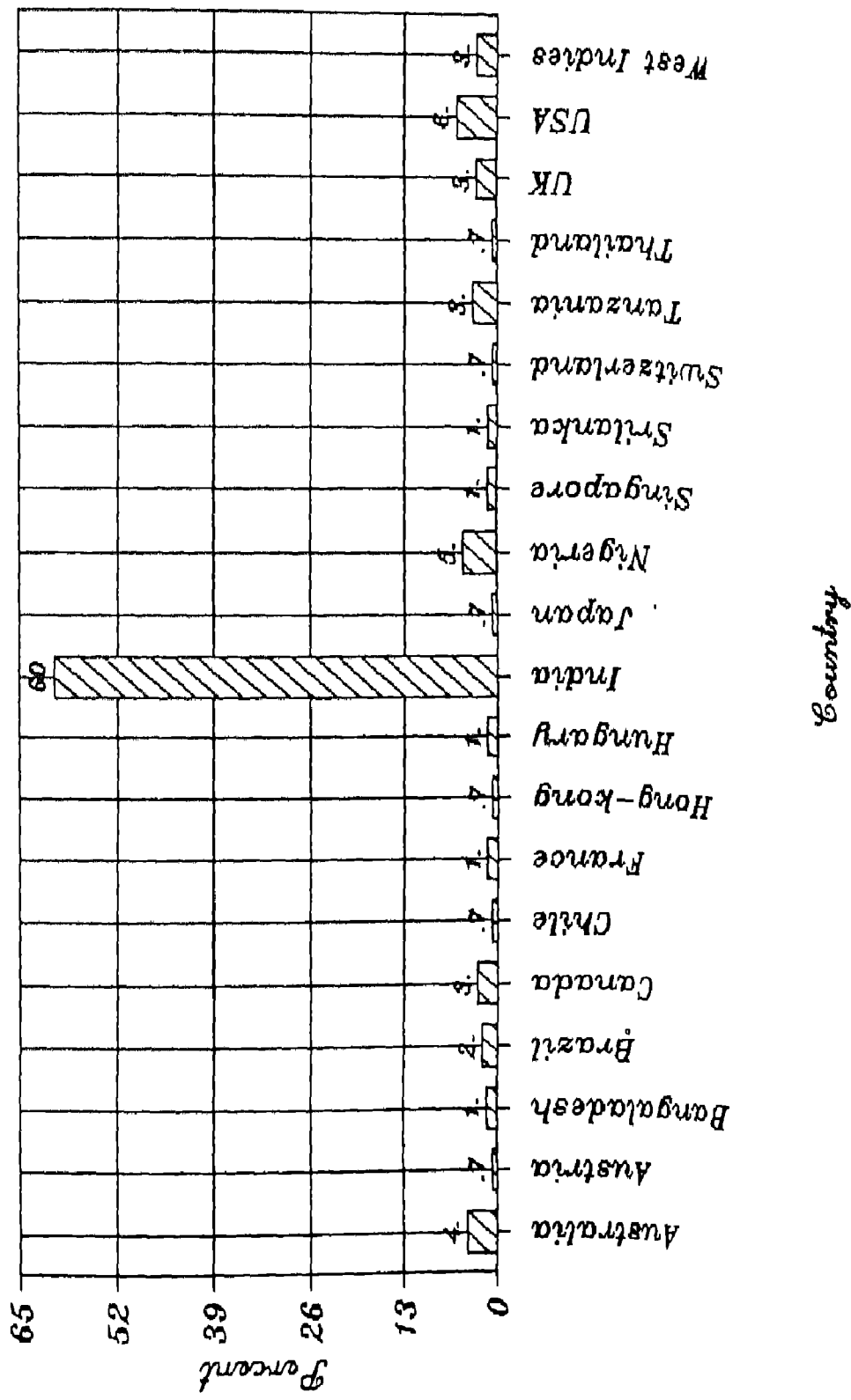
The contributors represent 20 Countries including India. The percentage of Indian Contributors works out to 60.42 and the remaining contributors 39.58% are from abroad.

TABLE - 11

Distribution of the Contributors Geographically
Country-wise

S.No.	Name of the Country	No. of Contributions	Percentage
1.	Australia	6	4.17
2.	Austria	1	0.69
3.	Bangladesh	2	1.39
4.	Brazil	3	2.09
5.	Canada	4	2.78
6.	Chile	1	0.69
7.	France	2	1.39
8.	Hong-kong	1	0.69
9.	Hungary	2	1.39
10.	India	87	60.42
11.	Japan	1	0.69
12.	Nigeria	7	4.86
13.	Singapore	2	1.39
14.	Sri Lanka	2	1.39
15.	Switzerland	1	0.69
16.	Tanzania	5	3.47
17.	Thailand	1	0.69
18.	U.K.	4	2.78
19.	U.S.A.	8	5.56
20.	West Indies	4	2.78
Total		144	100.00

Figure 2
DISTRIBUTION OF CONTRIBUTORS: COUNTRY-WISE



For a journal like **Perspectives in Education** published only for the last seven years, the proportion of Foreign Contributors to Indian Contributors is sizable. The contributors belong to the First World, the Second World and the Third World.

4.2.1.1. Distribution of Indian Contributors: State-wise

Table -12 lists those states to which the Indian contributors belonged. The state where they were working at the time of contributing the article is taken as the state of the contributor for the analysis. New Delhi with a cluster of Research Institutions like NIEPA, NCERT, & Universities like Jawaharlal Nehru University, Delhi University, has got the maximum number of contributors, i.e., 25 (28.74%). Gujarat, the source area of the journal under investigation occupies the next place with 15 contributors (17.24%). Karnataka's share of the contributors is 13, that is 14.94%.

TABLE - 12
Distribution of Indian Contributors
State-wise

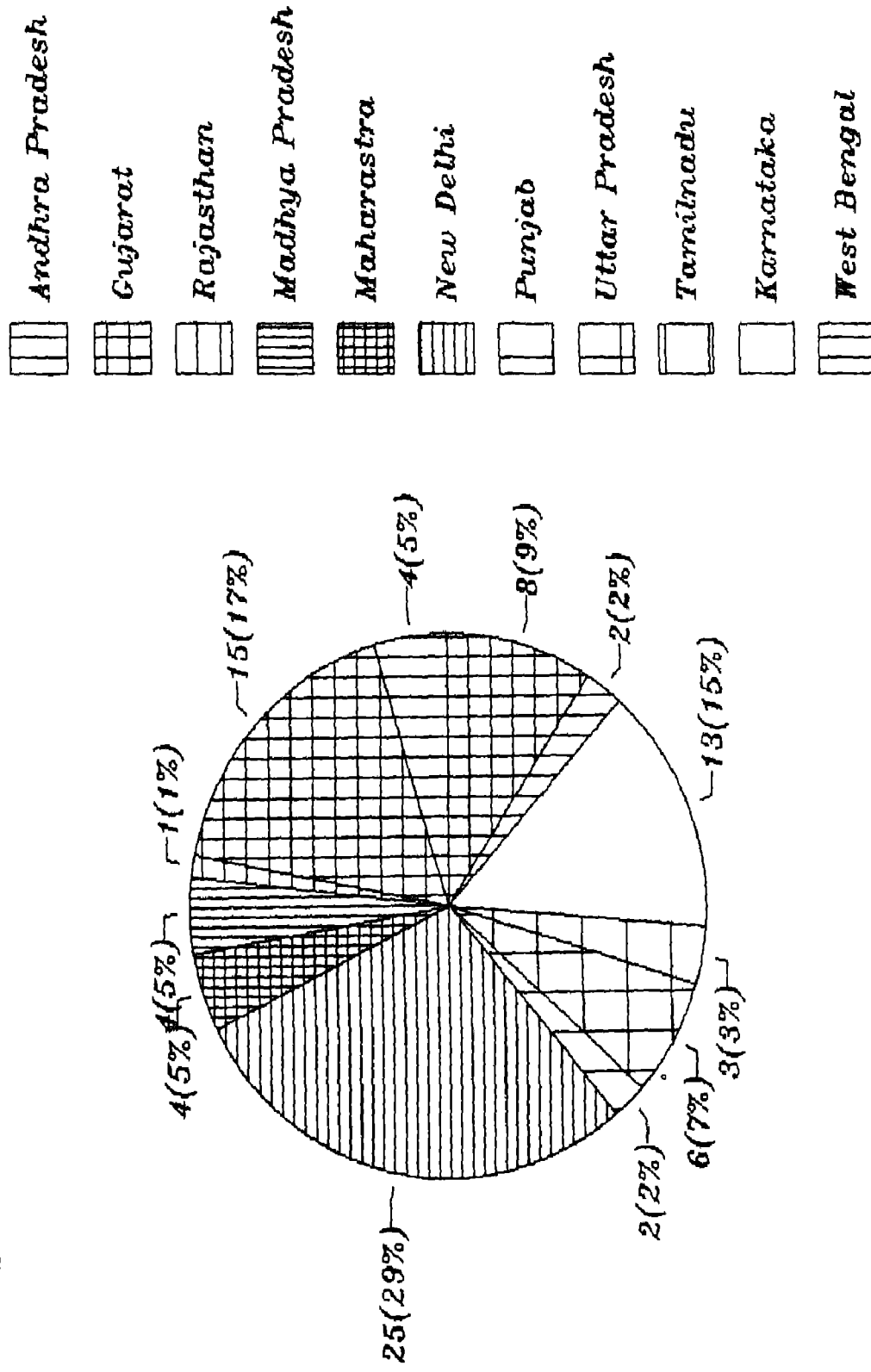
S.No.	Name of the State	No. of Contributors	Percentage
1.	Andhra Pradesh	4	4.60
2.	Gujarat	15	17.24
3.	Karnataka	13	14.94
4.	Madhya Pradesh	4	4.60
5.	Maharashtra	4	4.60
6.	New Delhi	25	28.74
7.	Punjab	2	2.30
8.	Rajasthan	1	1.14
9.	Tamil Nadu	3	3.44
10.	Uttar Pradesh	6	6.90
11.	West Bengal	2	2.30
12.	Not identified	8	9.20
	Total	87	100.00

4.2.2. Distribution of Contributors : Institution-wise:

Of the various types of Institutions shown in the Table-13 below, Universities have provided 59.03% of the total contributors, Colleges 10.41%, Research Institutions

Figure 3

DISTRIBUTION OF INDIAN CONTRIBUTORS: STATE-WISE



20.84%, Government Departments 1.39%, Schools 2.08% and Miscellaneous Institutes and Bodies 6.25%.

TABLE - 13

Distribution of Contributors:
Institution-wise

S.No.	Institution	No. of Contributors	Percentage
1.	Universities	85	59.03
2.	Colleges (College, College of Edn., College of Agriculture)	15	10.11
3.	Research Institutions	30	20.84
4.	Government Departments, Ministry, etc.	2	1.39
5.	Schools	4	2.08
6.	Miscellaneous & Not identified	8	6.25
Total		144	100.00

Universities are entrusted with the main responsibilities of promoting teaching, research, examination and extension activities. The teachers of the Universities are engaged in teaching and research activities leading to the reporting the same in journals. There are 191 Universities and deemed Institutions in India and therefore, the maximum number of contributors from Universities is an expected one. The prime source of contributors for the Perspectives in Education is thus the Universities.

The split-up figures for the contributors from the various Universities of India and from abroad are 43 and 42 respectively. In the case of Indian Universities, there are contributors from 18 Universities with M.S. University, Baroda, topping the list with 15 contributors. From Jawaharlal Nehru University there are 7 contributors; Punjab University, Devi Ahilya Vishva Vidyalaya, University of Mysore and Kalyani University (West Bengal), have 2 contributors each. Other Universities out of the 18 have one contributor each.

The percentage of contributors from Research Institutions is 20.84, i.e., 30 out of 144. From among Research Institutions in India, the National Institute for Educational Planning & Administration (NIEPA) has provided 11 contributors. National Council for Educational Research & Training (NCERT) and National Institute of Mental Health & Neuro Sciences (NIMHANS) are the other bodies whose personnel have contributed good number of articles to the Perspectives in Education. There are 15 contributors from Colleges including College of Education. The contributors from Schools are 4 in number.

Thus Universities, Colleges and Research Institutions which are concerned with the academic advancement and exploring new horizons of knowledge have contributed the

bulk of the contributors from India to the *Perspectives in Education*. Further one of the criteria for assessment of the Teachers' & Scholars' performance is the number of publications to their credit. Hence they are motivated to write more number of articles to the journals.

4.2.3. Distribution of Contributors: Position-wise

The contributors to the *Perspectives in Education* are from the different hierarchal status of the Universities, Research Institutions, Colleges, and other Bodies.

Table - 14 reveals that there are contributors to *Perspectives in Education* from the highest level of Director, Rector, Dean, etc., to the level of M.Phil Student (Research Scholar). The maximum representation is from the category of Lecturers accounting for 36.81% of the total number of contributors. This may be explained due to the fact that Lecturers and Research Scholars pursuing their doctoral studies have the motivating factors such as promotion, future prospects, etc. It was already pointed out that there are eminent Educationists and Former Vice-Chancellors' in the rank of the contributors to *Perspectives in Education*. Thus to get an article published in the *Perspectives in Education* may be viewed by Lecturers, Teachers and Research Scholars, a symbol of academic status.

TABLE - 14
Distribution of Contributors:
Position-wise

S.No.	Position	No. of Contributors	Percentage
1.	Director	8	5.56
2.	Rector	1	0.70
3.	Dean	2	1.40
4.	Principal	1	0.70
5.	Professor	18	12.50
6.	Associate Professor	7	4.86
7.	Secretary to Government	2	1.40
8.	Fellow	4	2.78
9.	Project-Chief	2	1.40
10.	Reader	12	8.33
11.	Lecturer, Senior Lecturer, Assistant Professor	53	36.81
12.	Research Scholar	19	13.19
13.	School Teacher	4	2.78
14.	Senior Scientist	1	0.70
15.	Coordinator	1	0.70
16.	Writer (Journal Article)	1	0.70
17.	Not Classified	7	4.86
Total		144	100.00

4.3.ANALYSIS OF CITED REFERENCES

This section deals with the analysis of references cited by the contributors to Perspectives in Education in their articles. The analysis of citations is based on the theory that there is a formal and subject based relationship between a source paper and the bibliographic references cited by it.

The analysis of the distribution of citations by such characteristics as Quantity, Form and Age provides certain interesting conclusions.

4.3.1. Distribution of Cited References by Quantity:

As pointed out earlier in the introduction, an author cites another work or author for a variety of reasons. The citing article and the cited reference are related to each other through the subject area or the nature of treatment. The cited reference augments or supports the conclusions of the citing author; it may just be a sort of acknowledgement for using the views, methodology of the author of the cited paper; it may be for further building up or the extension or elaboration of the earlier work.

The journal article is often evaluated on the basis of how many references have been cited and what reference in a specialised area is cited by authors frequently. While the former points to the comprehensive literature analysis by an author, the latter proves the popularity of the frequently cited reference, its author or the work wherein the cited reference appears. There is increasing tendency on the part of the authors to cite more number of references in their paper.

With regard to the journal *Perspectives in Education*, every article ends with a fairly long list of references. While the distribution of such cited references will be considered next, a knowledge of the sheer quantity of such citations and the average number of citations per article will be interesting. There are 3238 references cited by the 146 articles that were published in the *Perspectives in Education* during seven years of its publication. The year-wise break-up of the total number of cited references is given in Table - 15.

TABLE - 15
Distribution of Cited References by Quantity

Volume No.	Year	No. of Cited References	Percentage
Vol.1	1985	383	11.83
Vol.2	1986	457	14.11
Vol.3 .	1987	290	8.96
Vol.4 .	1988	390	12.04
Vol.5	1989	434	13.40
Vol.6	1990	761	23.50
Vol.7	1991	523	16.16
	Total	<u>3238</u>	<u>100.00</u>

It can be seen from the table that there is an increasing tendency on the part of the authors to cite more references in their articles except in 1987 and 1991 where the trend is disturbed to some extent.

4.3.2. Distribution of Cited References by Form:

The analysis of the citations shows that the citations are drawn from various sources - Books, Journals, Theses, Reports & Records, and so on. Some references are of explanatory nature, explaining a point in detail separately under the references, as such a detailed explanation in the

body of the article may sometimes drift the attention of the reader from the main point under consideration.

Apart from the Forms of literature cited above, references may be to radio broadcasts, interviews, telecast, etc. Our analysis of the cited references by Form is concerned with the Form under Books, Journals, Theses (Masters), Theses (Ph.D Level), Reports and Records, and Explanatory only.

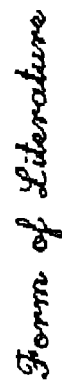
It is obvious that references from Books are far more than the citations in other categories listed above. 48.95% of total citations are from Books as against 19.15% from journals which come next. Basically, a journal article carries information in a narrower field and is more relevant to research. But books aim at a comprehensive study of a subject; it is concerned with older information; more slanted to historical approach.

TABLE - 16
Distribution of Cited References by Form

Volume No.	Year	Number of Cited References in							Total
		Books	Jnls.	MTheses	PTheses	Rep&Rec	Explan.	Misc	
Vol.1	1985	178	54	3	8	86	38	16	383
Vol.2	1986	196	67	4	89	75	25	1	457
Vol.3	1987	126	57	10	26	57	14	-	290
Vol.4	1988	254	49	4	6	65	12	-	390
Vol.5	1989	193	98	7	5	110	21	-	434
Vol.6	1990	436	185	10	41	70	19	-	761
Vol.7	1991	202	110	8	101	89	13	-	523
Total No.		1585	620	46	276	552	142	17	3238
Total %		48.95	19.15	1.42	8.52	17.05	4.39	0.52	100

It has been established by a number of studies that authors of articles in journals in Scientific disciplines cite more references from journals.

DISTRIBUTION OF CITED REFERENCES BY FORM



Paul Mohan Roy's study (1985) on the citation pattern of Indian Contributors to Physics Literature shows that 95% of the cited references in the three base years 1971, 1976 and 1981 were from journals. Books occupied only the fourth place with negligible percentage of cited references. While use of Theses was also very much minimum, there was an increasing trend from 1.02% in 1971; 1.97% in 1976; and 2.11% in 1981. An analysis of the citation pattern of authors in the Indian Journal of Physics by Gupta (1969) gives the figures as 82% for Journals and only 14% to non-serial publications, like Books, Reports, etc. A number of studies corroborate the above conclusions so far as Scientific Periodicals are concerned.

With regard to the Perspectives in Education, citations are more from books than from other forms. The authors' habit of citing more from Journals in scientific Periodicals is concluded as due to their concern for recent and up-to-date information in the Scientific disciplines. If so, are not the scholars and specialists in Education writing articles for Perspectives in Education not concerned with latest information and its treatment by a specialist in Journals? It is a matter to be studied, not in isolation, in one journal alone but in an elaborate manner, investigating the pattern in many journals in the field of Education.

There are 1.42% references from Theses (Master's level) and 8.52% from Ph.D. level. Explanatory references account for 4.39%.

The 620 references from journal literature are scattered over 211 journals belonging to different countries and subjects. Out of the 211 journals, 124 journals have got only one citation; the maximum number of citations from journal literature are from Indian Adult Education numbering 44 followed by Review of Educational Research 18, Journal of Curriculum Studies and Indian Journal of Social Work 14 each, Comparative Education and University News 12 each Economic and Political Weekly 11 etc.

33.38% of the cited references from journal literature are from 17 journals while the remaining 66.62% are from 194 journals.

The journal under investigation, Perspectives in Education has drawn only four references, in the course of its 7 years of publication, from its contributors.

4.3.3. Distribution of Cited References by Age:

The difference between the year of publication of the cited references and that of the citing document is the Age of the Citations.

The analysis of the citations with regard to Journal references only by the characteristic 'Age' yielded interesting conclusions. The Age of the cited references range from 0 to 75 years. According to Price, references to literature may be classified as belonging to Research Front and Archival Front on the basis of their age. References to recent literature form the Research Front and references to older literature constitute Archival Front. In the Scientific Periodicals, references with 0-2 or 0-3 years of Age are taken as belonging to the Research Front and references to Literature with 15 years and above ages are taken as those of Archival Front.

Now applying the same criteria in the case of cited references in Perspectives in Education, 20.31% fall in Research Front i.e., within 3 years. 21.72% of cited references fall in the category of Archival Front, i.e., more than 15 years.

TABLE - 17
Distribution of Cited References by Age

Age in Years	No. of Citations	Percentage
0 - 3	116	20.32
4 - 7	179	31.35
8 - 11	104	18.21
12 - 15	48	8.40
16 - 19	39	6.83
20 - 23	23	4.03
Above 24	62	10.86
Total	571	100.00
Age not mentioned in the Citations	49	

It is concluded that contributors to *Perspectives* in Education cited more references from rather 'aged' journals i.e., from the Archival Front (21.72%) than from the Research Front (20.31%) though the difference is only marginal. However, 78.28% of the journal references are having a citation age of less than 15 years.

CHAPTER V

SUMMARY & CONCLUSIONS

- 5.0 Introduction
- 5.1 Bibliometry
- 5.2 Review of Related Literature
- 5.3 Statement of the Problem
- 5.4 Objectives & Hypotheses
- 5.5 Methodology
- 5.6 Findings of the Study
 - 5.6.1 Analysis of the Contributions
 - 5.6.2 Analysis of the Contributors
 - 5.6.3 Analysis of the Cited References
- 5.7 Educational Implications
- 5.8 Points for Further Study
- 5.9 Suggestions
- 5.10 Conclusion

CHAPTER V

SUMMARY & CONCLUSIONS

5.0. INTRODUCTION

Modern era is experiencing an information explosion due to the rapid proliferation of knowledge in all disciplines. The mass of information generated by the information explosion has to be systematically recorded and organised for prompt and expeditious dissemination to the researchers and subject experts.

The periodical literature such as, Journals, Serials, Transactions, Bulletins, Proceedings, etc., has a major role to play in catering to the needs of the information thirsty researchers. The journals and the journal articles carry mostly primary information conveying the nascent and the latest ideas in any field. The journals act as a principal medium of communication between the researchers. They offer a forum for the continuous critical examination of the latest thoughts in every field.

According to Ulrich's International Periodical Directory 26th edition, there are 70,800 journals in 542 subject areas. The growth of periodical literature in the

field of education is also very high. In India, there are 156 Periodicals listed in the Directory of Periodicals Published in India (1991).

The Journal Perspectives in Education is the subject matter of the present study using Bibliometric Techniques.

5.1. BIBLIOMETRY

The bibliometric study is an emerging thrust area of research involving researchers from different disciplines. It involves the application of Mathematical and Statistical Methods to books and other media of communications. The various bibliographic variables of a document-Author, Title, Content Area, Citations- are analysed by applying simple Mathematical and Statistical methods. The unit of analysis here is the document and its characteristics, and not the user. It is emerging as a tool of research which can reveal important patterns in the literature of a discipline and provide a map of the field of study.

5.2. REVIEW OF RELATED LITERATURE

Literature survey reveals that from its advent in 1917 by Cole and Eales, more than 2000 items have been identified in Bibliometric study, even as on 1980. The review has

revealed that most the studies are based on straight forward counting and applications of simple Mathematical and Statistical methods. There are conceptual studies, empirical studies, theoretical modelling and application oriented studies. Most of the studies are on Citation Analysis and very large number are with regard to the scientific disciplines. The Bibliometric techniques are used for the following:

- i) to quantify the growth of a discipline and its sub-areas and the growth of literature in a field;
- ii) to rank individual Authors, Periodicals, Institutions etc.;
- iii) to assess the productivity of an Author, Scientist, Organisation, Nation etc.;
- iv) to study authorship trends;
- v) to identify core periodicals in a discipline and help in the acquisition policy of libraries;
- vi) to identify the pattern of referencing by authors;
- vii) to develop norms of standardisation etc.

This study is unique in that Bibliometric technique is applied to a specific journal in Education, published in

India and the coverage is comprehensive with analysis of contributions, contributors and the cited references with one of the objectives being to assess whether the journal has realised its set objectives.

5.3. STATEMENT OF THE PROBLEM

The present investigation is "A Bibliometric Study of 'Perspectives in Education'". It is a journal published by the Society for Educational Research and Development, Baroda. The Seven Volumes of the Journal comprising 28 Issues published during 1985-91 were analysed with regard to the Bibliographical characteristics of

(A) The Contributions:

Distribution of the Contributions Category-wise; Inter-disciplinarity wise; on the basis of the Content-area of the articles as per Duch's Classification; Productivity of Authors; Authorship trend; and the Time-lag between the receipt of manuscript and its publication in the journal.

(B) The Contributors:

Distribution of the Contributors Geographically and Sex-wise; their distribution on the basis of the Institutions to which they are affiliated and the positions held by them.

(C) The Cited References on the basis of their Quantity, Form and Age.

5.4. OBJECTIVES & HYPOTHESES

The objectives of the above mentioned analyses were:

(1) To assess whether the Perspectives in Education has realised its objectives by finding out quantitatively:-

- i) how far the contributions published in the Perspectives in Education are Inter-disciplinary;
- ii) the extent of involvement of Third World countries in the contributions;
- iii) the Category-wise contributions viz., in the categories of Issues & Trends, Research, Communication, Comments & Criticism and Review.

(2) To find out the dispersion of the content areas of the contributions as per the Buch's Classification of Subject-areas in his IV Survey of Research in Education and thereby ascertain the areas which attract more attention from the contributors and the areas which show 'gaps', if any.

(3) To calculate the average Time-lag between the receipt of Manuscript and its Publication in Perspectives in Education.

(4) To explore the trend towards multiple authorship with reference to the contributions in Perspectives in Education.

(5) To find out the Productivity of Authors Contributing to Perspectives in Education in the course of its 7 years of Publication.

(6) To analyse the Contributors with regard to their:-

- i) Country
- ii) If Indian, State
- iii) Sex
- iv) Institutional Affinity; and
- v) Position

and assess their contributions quantitatively on the basis of above factors.

(7) To carry out an analysis of the Cited References with regard to their distribution:-

- i) By Quantity;
- ii) By Form; and
- iii) By Age

so as to find out whether any pattern could be seen in the citations of the contributors to Perspectives in Education and whether the result is comparable to the results of earlier studies on Cited References in Scientific Periodicals.

The various Hypotheses made were:

(1) The Journal Perspectives in Education has realized its objectives as :-

- i) majority of contributions are inter-disciplinary (or) multi-disciplinary;
- ii) contributions from Third World Countries are significant;
- iii) Perspectives in Education is an effective forum for dialogue and debate among scholars & educationists.

(2) There is correlation between the dispersions of the content areas of the articles in Perspectives in Education and the trend depicted in the IV Survey of Research in Education.

(3) There is an increasing trend towards multiple authorship.

(4) Authors of the articles in Perspectives in Education prefer to cite more from Journals.

(5) Cited References from Journals are of recent origin.

(6) The Time-lag between the receipt of manuscript and its publication in Perspectives in Education is very high.

5.5 METHODOLOGY

The Bibliometric analysis was carried out collecting all the required data on Author, Content Area, the Third World Country focussed, details of the Contributors and those of the Cited References from the 28 issues of the Perspectives in Education which formed the entire population.

A PC-AT was utilised to create two Data-bases for storing, sorting, collecting and tabulating the data. The data was converted into percentages. In the case of the dispersion of the content-area of the articles in Perspectives in Education vis-a-vis the number of studies in Buch's IV Survey (1981-88) Spearman Rank Correlation

Coefficient was found out to assess the correlation. In the case of Time-lag, weighted Arithmetic Mean index was calculated. Bar diagrams and Pie-charts were also used.

5.6 FINDINGS OF THE STUDY

5.6.1 Analysis of the Contributions

(A) Category-wise Distribution:

The Category Issues & Trends has attracted the major attention of the scholars. 44.44% of the contributions belong to this category. Reviews occupy 26.27%; Research 24.24%; Communication 5.05% and Comments & Criticism NIL.

The study shows that one of the contemplated categories, namely, Comments & Criticism has not drawn any response from the scholars, specialists or general readers. This area was meant to provide a forum for active debate and dialogue among the educationists. Therefore it is concluded that the readers have not taken to the contributions as seriously as expected.

An interaction between the readers and the contributors on the basis of the contributions would have led to more fruitful out-put from the contributors.

(B) Inter-disciplinarity:

85.25% of the articles are inter-disciplinary or multi-disciplinary viewing the educational issues and problems from Economic, Sociological, Historical, Psychological, Methodological and Philosophical perspectives. The articles also discuss education from the view points of Women, Mass-media, Technology, Peace-Science, etc.

It is concluded that the journal is encouraging articles of inter-disciplinary character on the basis of the quantity and diversity of the inter-disciplinary articles.

(C) Focus on Third World Countries:

125 of the 146 articles, focus attention on educational issues related to the Third World. That is, 85.62% of the contributions are about the conditions prevailing in Third World Countries.

(D) Dispersion of the Content-area of the Articles:

There is positive correlation between the dispersion of the the subject areas of the contributions in the Perspectives in Education and the studies reported in the IV Survey of Buch (1981-88). Spearman Rank Coefficient value of 0.603 shows that the trend of research studies as

depicted by Buch in his IV Survey is reflected in the articles published in his Perspectives in Education.

The study has helped to find out quantitatively the contribution in each area as per Buch's Classification.

(E) Productivity of Authors contributing to Perspectives in Education:

86.89% of the total of 144 contributors have contributed only one article; 9.66% two articles; 2.07% three articles; 0.69% four articles and another 0.69% six articles.

The conclusion is that the contributors may be further encouraged to contribute more number of articles by offering more number of reprints, issues of the journal, etc.

(F) Time-lag between the Receipt of Manuscript and its Publication in Perspectives in Education:

The time-lag varies from 2 months to 25 months. The weighted Arithmetic Mean of the time-lag is 6.85 months which compares favourably with some journals in Physics and Agriculture. However, in view of the importance of the nascent information to researchers, all possible steps to reduce the time needed for referring and editing may be taken by the publishers.

(G) Trend of Authorship:

An overwhelming number of contributions are single authored. 81.5% of the contributions are from single authors; 16.44% by joint authors and 2.15% are from multiple authors.

The trend of authorship in Scientific disciplines is established to be towards multiple authorship thereby indicating more of collaborative research or team research. The trend in Education or more generally in Social Sciences or Humanities may be studied in more detail.

Thus the conclusions drawn from the above analyses are that the journal has realised its objectives with regard to encouraging inter-disciplinary articles and focussing the issues and problems of Education appropriate to Third World countries. It has also achieved its aim of freeing educating from the narrow confines of a purely pedagogic component, as the articles view the problems in Socio-historical and Economic contexts.

With regard to its aim of providing a Forum for active dialogue and debate among the scholars, the readers and contributors have not taken advantage of the forum provided by the journal. Though the negative response from the

readers and the people concerned cannot say that the journal has failed in its aim, yet an interaction between the readers and the contributors would have led to a lively exchange of views and to more fruitful output.

Objectives of the journal are realised with regard to inter-disciplinarity, focus on Third World nations and emphasis on Socio-historical contexts. With regard to the journal providing a Forum for interaction among the scholars, the investigator's assumption is not correct. There is a need for more involvement on the part of the readers and others concerned towards this.

The investigator's assumption that there is an increasing trend towards multiple authorship is not correct as the authorship trend in Perspectives in Education is heavily slanted towards single authorship.

The time-lag between the receipt of manuscripts and their publications in Perspectives in Education was assumed to be very high but study has revealed that it is only 6.85 months which compares favourably with that of some Indian Periodicals in Physics.

5.6,2 Analysis of Contributors

(A) Distribution of the Contributors Geographically:

There are contributors from 20 Countries including India. The contributors represent the developed and developing nations of the world. The Indian contributors account for 60.42% and the contributors from abroad 39.58%. The analysis reveals the international character of the contributors and hence that of the journal.

The Indian contributors are from 10 States and one Union Territory with New Delhi topping the list with 28.74% of the Indian contributors followed by the state of origin of the journal, namely, Gujarat with 17.24%. Thus the journal is truly representative of the diverse states of India.

(B) Distribution of Contributors: Sex-wise:

The number of Women contributors is small, only 24.31% of the 144 contributors.

(C) Distribution of Contributors : Institution-wise:

Among the various types of Institutions, the distribution of contributors is as follows:

Universities 59.03%; Research Institutions 20.84%;
Colleges 10.11%; Government Departments 1.39%;
Schools 2.08%; and Miscellaneous 1.25%.

Universities and Research Institutions have the basic function of promoting research and hence the more number of contributors from these areas is an expected one.

The split-up for the contributors from Indian and Foreign Universities is 43 from India and 42 from abroad which is again a pointer towards the internationality of the journal.

M.S. University, Baroda has contributed the maximum number of Indian contributors from Universities, i.e., 15 out of 43 contributors. Jawaharlal Nehru University comes next with 7 contributors. 18 Universities are represented in the list of contributors.

For the Research Institutions in India, National Institute of Educational Planning & Administration (NIEPA), National Council for Educational Research & Training (NCERT), National Institute of Mental Health & Neuro Sciences (NIMHANS), are the major sources of the contributors in the given order.

It is concluded that the personnel in the Research Institutions and Teachers in Academic Bodies are motivated to write as the number of publications in journals is one of the criteria for assessment of their performance.

(D) Distribution of Contributors: Position-wise:

There are contributors to Perspectives in Education from the highest hierarchical status of Director, Dean, Professor, Rector, to the level of an M.Phil Scholar.

36.81% of the contributors are from the rank of Lecturers (including Senior Lecturers, Asst. Professors, etc.) and this is due to the reason that they have the motivation such as promotion to higher ranks, future prospects, etc.

The presence of former Vice-Chancellors, Eminent Educationists and Award Winners in the rank of the contributors may also be the strong motivating factor for others to write in a journal, as a symbol of academic status.

The list of contributors also includes editors of three journals in the field of education, Manas; Education, Technology and Human Resources Development, and Comparative Educational Review.

5.6.3 Analysis of Cited References:

(A) By Quantity: There are 3238 references cited by the contributors of articles at the end of their articles working out to an average of 22 references per article.

The more number of references in an article is a pointer to the comprehensive nature of the literature survey.

The number of cited references increases every year except for a marginal disturbance during 1987 and 1991.

(B) By Form: The analysis of Cited References by Form shows the following distribution:-

Books	-	48.95%	;	Journals	-	19.15%
Theses	-	9.94%	;	Reports & Records	-	17.05%
Explanatory	-	4.39%	&	Miscellaneous	-	0.52%

Thus Books are the major source of references for the contributors of Perspectives in Education. This shows a

drastic difference in the citation pattern of the contributors to Scientific Periodicals and the contributors to Perspectives in Education. It is a factor to be studied in detail with reference to more number of journals in Education and in other disciplines. More cited references from journal literature is taken as a measure of the author's concern for latest and up-to-date information in Scientific disciplines. If that criteria is applied to the cited references in Perspectives in Education, the authors are more inclined to use information from books which treat the subject in a comprehensive manner.

The 620 cited references from Journal literature are scattered in 211 journals. 33.38% of them are represented by 17 journals and the 66.62% by 194 journals. The Journal Perspectives in Education has drawn only 4 references during this period of seven years.

(C) By Age: The analysis of the cited references in Journal Form in the Perspectives in Education shows that the age of the references vary from 0-72 years.

In Scientific disciplines, references are considered as belonging to 'Research Front' and Archival Front on the basis of their age. Applying the criteria to the cited references in Perspectives in Education, only 20.32% fall in

the Category of Research Front (age 0-3 years) and 21.72% in the Category of Archival Front. Overall, 78.25% of the cited references are having a citation age of less than 15 years.

Thus, the contributors to *Perspectives in Education* are more concerned with older or obsolete information than recent and latest information. While this should be so for articles with a historical perspective, the number of such articles is only 4.8% of the total contributions.

5.7 EDUCATIONAL IMPLICATIONS

The Journal *Perspectives in Education* is being published by the Society for Educational Research and Development of the M.S. University, Baroda, with a set of goals and objectives. It wants to be a different journal, not 'yet another journal', the Bibliometric analysis has shown where the journal stands with regard to its aims and objectives. An evaluation of the journal after 7 years of its uninterrupted publication will be useful to the publisher to take decisions on suggestions based on the study. The quantitative method used is in a way an evaluation of the quality of the articles as the study has gone into all the details with reference to the contributions, contributors and cited references. The findings regarding the positive correlation of the trend of

the dispersion of the content areas of the articles with the trend depicted by Buch in IV Survey, the inter-disciplinarity, internationality of the contributors and the other factors will be pointers to the direction of the Journal.

5.8. POINTS FOR FURTHER STUDY

(A) Scope of the present study may be widened by taking into account a number of Indian Journals in Education and a comparative study with an equal number of foreign journals for a given period may be undertaken. Such an analysis may help in arriving at conclusions regarding Multiple Authorship, Citation Pattern, Trend of the dispersion of the Subject-areas, etc.

(B) The contribution of Indian Educationists and Scholars to the literature growth in education, globally may be studied for a period of 10 years. For this reputed abstracting journals like Current Contents may be taken as the base.

(C) The Literature growth in the field of education during 1980's in India and other Countries may be studied in detail.

5.9 . SUGGESTIONS

(A) The journal is truly international in character with 39.58% of the contributors from abroad and its focus is on Third World Countries. The journal has also the ISSN. Hence it will be very useful, if steps are taken to publish the abstracts of the articles in reputed abstracting journals of the world and also indexed in reputed indexing journals like Educational Abstracts, Current Contents, etc.

(B) The journal does not find a place in the world's most comprehensive periodical directory namely Ulrich's Periodical Directory. Steps may be taken to include the journal in the Ulrich's Periodical Directory in its next edition.

(C) The journal may continue to give the details of the date of receipt of manuscript at the end of each article. This will facilitate to know the Time-lag between the receipt of manuscript and its publication.

(D) With the present lay-out, the journal is already set to reach its aims and objectives; any change such as restricting a particular issue to a particular theme need

not be contemplated. The present status of the journal covering the general and specific issues in the various areas of education will be more useful.

(E) Efforts may be made to encourage responses from the readers by inviting their Comments and Criticisms at the end of each article or at one or two prominent places in each issue of the journal. Such Comments & Criticisms, worth publishing may be published along with the contributors reply at the earliest.

(F) The contributors may be instructed to furnish all bibliographic information pertaining to the cited references.

5.10. CONCLUSION

Thus, the overall conclusion of this Bibliometric Study of Perspectives in Education is that the journal is marching ahead to attain the set goals and objectives. The journal's endeavours to encourage inter-disciplinarity, to focus on issues and problems pertaining to Third World Countries and to free education from the narrow confines of class-room teaching, are meeting with success. The journal deserves more circulation support, but this demands an endeavour on the part of all concerned to free themselves from the notion that anything that is available cheap need

not be taken seriously. The Journal Perspectives in Education is providing a wealth of information at an incredibly low subscription rate which itself is an indication of the journal's genuine concern for the Third World.

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APPENDIX - I

FILE STRUCTURE OF PIE.dbf (created using dBASE III Plus DBMS software)

S.No	Field Name	Field Type	Field Length	Field Decimal	Remarks
1	AUTHOR1	Character	25		0 First Author
2	AUTHOR2	Character	25		0 Second Author
3	AUTHOR3	Character	25		0 Third Author
4	SEX1	Character	1		0 Sex of Author I
5	SEX2	Character	1		0 Sex of Author II
6	SEX3	Character	1		0 Sex of Author III
7	COUNTRY	Character	25		0 Country
8	STATE1	Character	20		0 State of Author I
9	STATE2	Character	20		0 State of Author II
10	INSTTN1	Character	35		0 Institution of Author I
11	INSTTN2	Character	35		0 Institution of Author II
12	POSITION1	Character	25		0 Position of Author I
13	POSITION2	Character	25		0 Position of Author II
14	POSITION3	Character	25		0 Position of Author III
15	VOLUME	Character	5		0 Volume
16	TITLE	Character	75		0 Title
17	BUCHSUBJ	Numeric	2		0 Buch Subject Area
18	INTERDISC	Character	30		0 Interdisciplinary
19	MANCRTYEAR	Character	6		0 Manuscript Date
20	THIRDWORLD	Character	20		0 Third World
21	CATEGORY	Character	20		0 Category

FILE STRUCTURE OF REFPIE.dbf (created using dBASE III Plus DBMS software)

S.No	Field Name	Field Type	Field Length	Field Decimal	Remarks
1	CODE	C	9		0 Vol/Number/Article No
2	FORM	C	10		0 Form of cited reference
3	YEAR	N	4		0 Year of the cited reference
4	JTITLE	C	50		0 Title of the Journal
5	ORIGIN	C	20		0 Country of Publication